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Bernhard A. Koch (ed.)

Economic Loss Caused by Genetically Modified Organisms

Liability and Redress for the Adventitious Presence of GMOs in Non-GM Crops

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Institute for European Tort Law
of the Austrian Academy of Sciences

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Economic Loss Caused by Genetically Modified Organisms

Liability and Redress for the Adventitious Presence of GMOs in Non-GM Crops

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Preface

European farmers should have a free choice between growing conventional or organic crops or cultivating genetically modified plants instead, to the extent permissible. While this goal can hardly be disputed, it is subject to a heated debate throughout Europe whether such co-existence can ever be truly achieved in practice, as agriculture by its nature cannot be performed in completely isolated zones which guarantee the complete segregation of GM and non-GM production. Despite all due efforts, traditional agricultural products, particularly if grown in the vicinity of GM fields, may therefore still turn out to contain detectable traces of GMOs.

To the extent primary ways to secure the separation between the various farming practices such as buffer zones or the like fail, secondary tools may be necessary in order to reestablish the balance of interests between the producers. This is where tort law and alternative redress schemes come into play.

As will be seen, European jurisdictions differ quite substantially when it comes to responding to the economic loss incurred by one farmer due to the permissible pursuit of a novel production technique applied by another. This book not only tries to present those different approaches country by country, but also offers a comparison of the existing regimes as well as reflections on how such diversity may or may not need to be addressed on a European legislative level.

This study was commissioned in 2006 by the Directorate-General for Agriculture and Rural Development of the European Commission and completed in 2007. The work was undertaken by the Research Unit (now: Institute) for European Tort Law of the Austrian Academy of Sciences jointly with the European Centre of Tort and Insurance Law (both in Vienna, Austria). The findings and conclusions presented in this book are within the responsibility of the authors and do not necessarily reflect the opinion of the European Commission.

I would like to take this opportunity to thank all the participants in this study for their support, in particular for submitting their contributions on time despite an extremely tight schedule. I am especially indebted to Vanessa Wilcox, without whom the administration of this project and its timely conclusion would have been flatly impossible. Furthermore, I would like to stress that the cooperation with my contacts at the European Commission was exceptionally fruitful and productive, and I hereby thank Andreas Gumbert and Caroline Raes in particular for their critical feedback throughout the various stages of this research endeavour.

Bernhard A. Koch
Innsbruck, June 2008

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Introduction

Introduction

The following study was produced at the initiative of the European Commission. The objectives of the study as defined by the Commission are reprinted below.[1] The conclusions, recommendations and opinions presented in this book reflect the opinion of the authors only, however, and do not necessarily reflect the opinion of the Commission. 1

In order to ascertain the status quo, country reports were produced by specialists in all jurisdictions covered by the end of August 2006. The reporters followed a uniform questionnaire[2] which had been put together in close cooperation with the Commission. The reports have been updated for this publication where necessary. 2

It was agreed upfront that not only the (at the time) 25 Member States of the European Union should be covered this way, but also Norway and Switzerland, due to their (not only geographic) proximity and their necessary involvement in loss scenarios at their borders to Member States. 3

Another questionnaire was sent out to the competent ministries in each Member State, but also to their counterparts in other EEA countries as well as in Acceding[3] and Candidate States. The focus of this second survey was more on legislative aspects (both present and future). While the responses to these questionnaires cannot be published as such, they have nevertheless been considered in the following report. 4

Apart from this assessment of the status quo (including upcoming changes to the extent already known), two more general reports were produced: One study offers an economic analysis of the various legal options to deal with the kind of losses covered by this study. Another report was produced by insurance experts and focuses on the insurability of such risks. 5

In order to avoid an overly complicated style, it will be necessary to use language that seems to oversimplify the matter or even reflect a certain bias with respect to the subject matter of this study. Unfortunately, this is not 6

[1] Infra 5 ff.
[2] Infra 53 ff.
[3] Bulgaria and Romania were not yet Members at the time this survey was conducted.

entirely avoidable. Please note, however, that the use of words like "contamination" or "victim" is entirely technical and has no pejorative undertone whatsoever.

7 The "GM farmer" in this report will obviously be the one who cultivates GMOs on her fields. Since she does not necessarily need to own the land used for such purposes, the landowner may be a different person. If so, there may be two (or more) addressees of a claim against the person in charge of the origin of GM seeds or pollen. This will only be addressed explicitly where needed; at other occasions, please bear this possible separation of persons in mind.

8 The "non-GM farmer" is meant to be the one who suffers a loss by GMO admixture, no matter whether she is a conventional or an organic farmer. This difference may be important, however, when it comes to determining the scope of the loss, as the damage resulting from gene flow may be more substantial for organic farmers.

Objectives of this Study*

I. Summary

The introduction of genetically modified organisms (GMOs) in EU agriculture may have economic implications that result from incomplete segregation of GM and traditional crop production. In particular, the presence of GMOs can not be ruled out in non-GM agricultural products. Due to requirements for labelling of GMOs and other purity criteria of non-GM products as well as market demand for non-GMO products, such presence may have negative economic implications for the operators concerned. The present study is aimed at analyzing aspects concerning the liability of GMO presence in traditional agricultural products.

II. Background

1

The cultivation of genetically modified (GM) crops in the EU may lead to cases in which traditional agricultural products contain detectable traces of GMOs. On the one hand, such admixture may result from inadequate application of segregation measures by farmers. On the other hand, as agriculture is an open process that does not allow the complete isolation of individual fields, a certain degree of admixture between neighbouring crops is unavoidable in practice.

2

The presence of GMOs in traditional products may lead to their devaluation, which would entail an economic damage to the producer of the traditional products. For instance, due to the presence of the GMO the traditional product may be required to be labelled as GM.

3

GMOs and products containing or produced from GMOs have to be labelled according to Community legislation, in particular Directive 2001/18/EC, Regulation (EC) No. 1829/2003, and Regulation (EC) No. 1830/2003. For the case of adventitious or technically unavoidable presence of GMOs in non-GM products, Regulation 1829/2003 provides for a threshold of 0.9% below which such presence in food or feed does not require labelling. For seeds, Directive 2001/18/EC provides for the possibility of adopting thresholds, below which the adventitious or technically unavoidable presence of GM seeds does not

4

* This text was drafted by the European Commission and is part of the Tender Specifications under which the following study was performed.

require the labelling of conventional seed lots. Such thresholds have not yet been adopted.

5 The presence of GMOs above the labelling threshold in a product also triggers the need for traceability of GM products according to Regulation 1830/2003, which may cause additional costs for the operators concerned.

6 In the EU, crops may only be commercially cultivated after having been authorized for the purpose of cultivation under Community legislation (i.e. Directive 2001/18 or Regulation 1829/2003). The labelling thresholds only apply for the presence of authorized GMOs. Products containing detectable traces of unauthorized events can not be legally marketed in the EU.

7 According to part B of Directive 2001/18, an individual Member State may grant authorization for a non-commercial release of a GMO, for instance for the purpose of experimental field testing. As a result of such experimental cultivation, GMOs not authorized under part C of Directive 2001/18 or under Regulation 1829/2003 may be present in traditional crops. This presence could cause economic damage as food and feed can not be marketed if it contains detectable traces of such GMOs.

8 The admixture of GMOs may also have specific implications for organic products. Regulation (EEC) No. 2092/91 on organic production of agricultural products specifies that GMOs may not be used in organic production, with the exception of certain veterinary products. Therefore, products that require labelling as GM can not be used in organic farming. This implies that GMO presence in organic input materials (such as seed or feed) could have implications beyond the necessity of labelling alone.

9 Further economic implications may result for farmers producing non-GM crops if specific requirements concerning GMO presence, which go beyond the provisions in Community legislation, are laid down in contracts with the retailers or other operators further down the food or feed production chain. Such conditions may also apply for products produced under quality schemes.

10 In addition to the economic implications resulting from the actual presence of a GMO in a traditional product, costs may also occur due to sampling and testing of products, either on a basis of routine controls or in cases where relevant GMO admixture may be suspected. In many cases, the presence of GMOs and their quantity can not be assessed without the use of laboratory analyses, which may cause significant costs.

11 Furthermore, economic implications for traditional producers that may relate to the presence of GM crop production in a region, and which could enlarge the risk of GMO admixture, can not be ruled out. For instance, food or feed producers may preferentially purchase crops from certain regions where no GM crop production may take place.

If the cultivation of GM crops becomes more widespread, the issue of liability in relation to GMO admixture could gain further importance in the EU. Compared to other cases of economic damage resulting from neighbouring activity, GMO admixture may pose specific difficulties because the admixture may initially remain undetected and become known at later stages of the food or feed production chain. Furthermore, the causal link between the damage and the operator responsible for it may not always be apparent as there may be different sources of admixture (e.g., seed impurities, out-crossing with neighbouring crops, volunteers from previous GM crop cultivation). 12

Liability in the case of economic damage that may result from the presence of GMOs in other crops is a case of civil law. Generally, civil law is in the responsibility of the Member States. In Recommendation 2003/556/EC on guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming, the Commission states that: 13

> "The type of instruments [to achieve co-existence] adopted may have an impact on the application of national liability rules in the event of economic damage resulting from admixture. Member States are advised to examine their civil liability laws to find out whether the existing national laws offer sufficient and equal possibilities in this regard. Farmers, seed suppliers and other operators should be fully informed about the liability criteria that apply in their country in the case of damage caused by admixture.
>
> In this context, Member States may want to explore the feasibility and usefulness of adapting existing insurance schemes, or setting up new schemes."

Member States may develop national or regional approaches to ensure the co-existence of GM crops with conventional or organic agriculture. According to Article 26a of Directive 2001/18: 14

> "Member States may take appropriate measures to avoid the unintended presence of GMOs in other products."

In the context of national or regional co-existence legislation Member States may also adopt specific provisions for liability in cases of GMO admixture, and develop compensation schemes, such as insurance systems or compensation funds. 15

Liability has to be seen in the context of measures to segregate GM crop production from traditional non-GM production in order to achieve co-existence between these different forms of agriculture. The approach taken by the Member States to allocate the responsibility for developing and implementing these segregation measures among the operators concerned has significant implications on liability. 16

Executive Summary

Bernhard A. Koch

This study focuses on how to respond to losses incurred by conventional or organic farmers due to the presence of genetically modified organisms (GMOs) in their crops, primarily from a tort law perspective. It is assumed that the presence of these GMOs results either directly or indirectly from the commercial cultivation of GM crops which are approved for this purpose according to EU legislation. 1

Only economic losses such as a reduction of the market price or costs of testing crops are covered, whereas personal injury or damage to property as such (other than harm to the field itself or to the crops thereon) shall be disregarded. Damage to the environment in a narrower sense, for example the potentially detrimental impact on biodiversity, will equally not be addressed. 2

The losses under survey here need not be very significant – in a typical case, the conventional crops will not sell at a substantially higher price than their GM counterparts, otherwise the latters' cultivation would not be economically reasonable in the first place. The loss suffered by the farmer on whose field admixture occurred will therefore generally be based upon that price difference if her produce can still be sold on the GM market. Costs of testing or of entering that market (such as efforts to find a new buyer) will add thereto, however. More substantial damage is imaginable, for example, for organic farmers who may lose their organic certification, or with respect to consequential losses incurred further down the production or distribution chain. 3

In order to define the extent of liability, one crucial decision that all jurisdictions invariably have to make is whether claimants shall also recover those losses which are caused by admixture of food or feed production below the EU threshold for GMO labelling, which is set at 0.9%. Since the produce would not have to be labelled GM in such cases, there should typically be no difference in the price and hence no loss. However, the farmer may be under a contractual obligation to a third party, for example, to deliver crops with an even higher degree of purity. The question therefore is whether the legal system will indemnify such losses as well even if the general marketability of the crops is given. The answer to this question is not predetermined by the fundamentals 4

of tort law – it is the result of balancing the interests involved, and as with any weighing process, the outcome is not entirely predictable.

5 The typical cause of any such losses, whether admixture remains below or exceeds the threshold, will be gene flow from a field where GM crops are being cultivated. Alternatively, for example, the seeds used by the conventional farmer may have been impure, but there are other imaginable sources of admixture (e.g. during harvest, storage, transportation, out-crossing with feral crop populations, etc.).

6 In order to find out how the legal systems of all EU Member States currently deal with such cases and what solutions they offer to indemnify non-GM farmers, experts in all jurisdictions have been consulted who have authored country reports based on a standardized questionnaire. Norway and Switzerland were also included in the survey. Summaries of all country reports offer a first overview of the more comprehensive submissions. In addition to these academic evaluations, feedback from all concerned governments was collected, particularly with an eye to future plans. Furthermore, a paper analyzing these problems from a law and economics perspective was produced by experts in that field. Finally, insurance practitioners also presented the position of their industry.

7 On the basis of these materials, a general report was drafted which will not only provide a comparative analysis of the status quo throughout Europe, but will also address policy questions, in particular with an eye to whether the existing situation calls for efforts to harmonize the current laws.

8 The general report starts out by examining possible ways to allocate the risk. After an assessment of the kind of risks this study is concerned about, the report proceeds from the basic principle that losses may only be shifted onto someone else if law offers good reasons to do so. Initially and by definition inevitably, it will always be the immediate victim who is the first loss-bearer. Unless the legal system offers indemnification by way of tortious liability or on other grounds, or by granting awards under a compensation fund or other redress scheme, the immediate victim will also be left with her loss in the long run. That in itself does not suffice as a reason to award compensation, however – law is based upon a balancing of competing interests rather than an unconditional recognition of individual claims.

9 The report goes on to analyze tort law as the classic route on which all legal systems offer compensation subject to their specific requirements. Apart from the immediate neighbour who cultivates GM crops, possible defendants in a tort action include, for example, all other GM farmers in the area, seed producers or distributors, those in charge of farming equipment, as well as the authorities whose licenses or permits made the GM cultivation admissible. If the requirements of a tort claim against more than one of them are fulfilled, the victim can typically sue either one of them to recover her full damage.

It is then up to the defendant to seek contribution from the others by way of recourse.

10 However, these tort law requirements vary substantially throughout Europe, which may lead to different outcomes even in comparable fact settings. Some legal systems make a difference between economic loss which is a mere consequence of preceding damage to the person or to tangible property of the victim on the one hand and so-called "pure" economic loss which affects the victim's assets directly without any intermediary harm to her person or other property. This is for example true in Austria, Cyprus, England, Finland, Ireland, Norway, Poland, Portugal, Sweden, and Switzerland. However, others do not make such a distinction. This difference is therefore crucial, e.g., for determining whether a reduction of the market price is compensable if it is the result of customer fear that the crops may be GM, even if no actual admixture had occurred. It may also be relevant if one should conclude that GM crops growing in a non-GM field are no damage to the field or to its non-GM crops, but merely to the farmer's proceeds.

11 Even if the recognition of the loss should not pose a problem, the claimant may nevertheless fail due to difficulties in proving its cause. Jurisdictions are more or less generous in this respect, not only as far as procedural rules are concerned, but also when it comes to determining who should bear the consequences in case of doubt, be it with respect to a single event or to multiple possible causes. The standard of proof that claimants have to meet ranges from "more likely than not" (e.g. in Cyprus, England, Ireland, and Norway) to almost certainty (for example in Austria and Belgium).

12 Ultimately, jurisdictions will handle the claim either under traditional fault concepts by evaluating the defendant's conduct, under a strict liability regime which is irrespective of blameworthy behaviour attributable to the defendant, or under any hybrid basis of liability in between. Defences may or may not reduce or exclude liability, which further diversifies the range of possible outcomes in the European overview.

13 In all jurisdictions, special provisions addressing damage caused to neighbouring land may come into play as well. Since these are intended to find a compromise between two conflicting interests which per se are of the same value, they seem to be at least one model to consider for developing co-existence rules in the GMO case scenario. However, those rules also differ throughout Europe, even with respect to their theoretical basis. They are by and large in accord, however, that an interference with neighbouring land must be unusual and unreasonable in light of the area and other circumstances in order to provide for compensation.

14 While some countries have decided to maintain traditional tort law rules including their inherent uncertainties, other jurisdictions such as Austria, Germany, Poland or Switzerland, have introduced special strict liability regimes

which apply specifically (though maybe not exclusively) to the kind of problems under survey here. Typically, those countries who opted in favour of specific legislation did so in order to make access to compensation easier, or – in other words – to shift the economic risks of GM farming onto those who pursue it. In those countries, GM farmers are much more likely to be liable towards their non-GM neighbours than in other jurisdictions even though the facts of the case may be identical. One way of doing so is to assign such cases to the existing regime for neighbourhood conflicts coupled with defining certain requirements thereof as given. This was done in Germany, for example. Other countries such as Finland or Norway chose to shift these matters at least in part into their general environmental liability regimes, which invariably exceed the scope of the Environmental Liability Directive, above all by also addressing losses of individuals.

15 Whether or not any special tort law rules apply, fault liability nevertheless remains the default rule throughout Europe which claimants can resort to alternatively or even cumulatively (though not beyond their actual loss, of course). This multi-layer system will inevitably resist harmonization efforts on just one level since backdoors and detours will always lead to the other(s).

16 Leaving aside existing differences between European jurisdictions, tort law is certainly one possible basis for proceeding to a more harmonious solution for non-GM farmers whose crops were mixed with GMOs. However, certain limits will always have to be taken into account which are not inherent in tort law proper, but inseparably connected thereto. Tort claims are traditionally administered by regular courts of law, and the procedure to obtain compensation before them can be cumbersome, time-consuming and costly. Even if the plaintiffs succeed at the end of this process, they may still not be able to collect damages from the defendants if the latter do not hold sufficient funds to pay their dues.

17 Furthermore, before focusing on tort law as a compensation model for the damage under survey here, one should also bear in mind that the primary function of tort law is to compensate losses and not to prevent them. Even though the latter were desirable, other areas of the law offer better tools to achieve that. Differences in technical or administrative rules on co-existence which are designed inter alia to avoid harm will most likely have a greater impact on the feasibility to cultivate GM crops and the protection of non-GM farmers from GMO admixture than the existing differences in liability rules, which are all meant to step in once segregation measures have failed. Harmonization of liability would therefore only make sense after these ex ante aspects of co-existence are well-defined and uniform throughout Europe.

18 Even if all that were taken care of, a true harmonization of liability is far from guaranteed: European jurisdictions have each developed an individual claims culture and a distinct compensation culture. Some are more open towards the idea of national solidarity and collective risk-sharing, others still put consid-

erable emphasis on a more individualistic approach. Imposing uniform rules for a comparatively narrow case scenario such as the one envisaged here may lead to a solution which may not be available under all existing tort laws, even though it will necessarily have to build upon and fit into at least the more fundamental concepts thereof. Tort law language may alone lead to complications, as the technical terms that unavoidably will have to be used are understood by the respective jurisdiction in the way it has evolved there, with all its distinct features and interactions with other aspects that the GMO scheme may not specifically address. Attempting to find a uniform standard for indemnifying losses caused by gene flow may thereby risk an admixture of tort law regimes even within one single Member State. Full harmonization cannot be achieved anyhow unless tort law is harmonized in a more general way which applies beyond singular case settings, and this does not seem to be an option for the time being.

19 The study also analyzes whether and to what extent the insurance market can contribute to improving co-existence between GM and non-GM farming by providing for cover against the losses under survey here.

20 One option could be via liability insurance, which could cushion in particular some practical problems of tort law by accelerating access to payments and, even more importantly, by absorbing the risk (to the extent of the policy limit) that the tortfeasor individually is unable to compensate the claimant. However, such third-party insurance awards will only be available if the insured is actually liable, i.e. if all substantive requirements of tort law are met, so that the complications and differences in that respect remain unresolved.

21 Alternatively, non-GM farmers would not have to resort to tort law at all if their losses were covered by their own farm (or other first-party) insurance. While this would require farmers to contribute to providing cover for their own damage (which they already do for various other risks), by expanding the risk pool the extent of the said contribution could be significantly reduced as compared to cases where the non-GM farmers may be left alone with their full loss. This may well be the case if there is no other way that leads to compensation, for example due to difficulties of proving one or more tort law requirements, or because the applicable national system denies liability for other reasons, in particular if the cultivation of GM crops was done in accordance with the applicable farming standards in force at the time.

22 First-party insurance has the additional advantage for the victim that her peculiar risk is taken care of: She should know best what losses she may suffer, and she can therefore (at least in theory) buy cover that is tailor-made to her situation. Payments can be even faster than under a liability insurance scheme with direct claims, because the insured risk focuses on the occurrence of the harm and (at least in general) not on its cause, even though certain risks may be excluded. This is not the only reason why this type of insurance may be the most cost-efficient regime.

23 Whether third- or first-party insurance, both allow the pooling of risks among a larger group of people exposed thereto, and it is even bigger if taking out such cover is made mandatory. The insurer can tailor its products according to the various aspects of the risk. At least in theory, for example, those who run a higher risk will typically pay higher premiums (though not necessarily so, and it is certainly not a linear correlation): In the case of liability insurance, for example, those who cultivate crops where mixing is more likely will rather pay more per area than those who plant crops less prone to mixing. Apart from more general geographic criteria, it may also be a price-determinant whether the farmer operates in a GM or non-GM environment.

24 Insurers may be lacking crucial information for properly assessing the risk. Premia may therefore be either too high (and thereby deter potential clients from buying such cover, or lead to an unjustified increase of production costs) or too low (which ultimately will have an impact on the insurers' balance sheets). The policies may include limitations of certain risks or other restrictions. The insured amount may not suffice to cover the full loss owing to manifold reasons and possibly leading to serious consequences. Those at risk may not be aware of it at all or have false assumptions of the extent of the risk: Conventional or organic farmers simply may not know that someone in their vicinity has started to cultivate GM crops. This may seduce them out of buying first-party insurance at all or only subject to unreasonable limitations. Such problems could be remedied by making insurance compulsory, which only makes sense if there is an adequate range of suitable insurance products on the market to meet the (artificially increased) demand, though.

25 At present, neither liability nor first-party insurance products covering GMO risks seem to be available on the markets under survey. Problems for insurers in this respect can be traced back to the standard criteria which would allow them to consider whether such risks are insurable: estimable frequency and severity of harm, the fortuitous nature of the loss, and the ability to spread it. Arguably, there is currently not enough data available to predict both likelihood and extent of possible losses, particularly in light of the broad range of plant varieties and their peculiar features that have a bearing on these aspects. Unless it is clear for insurers that losses below the legal threshold of admixture need not be covered, the fortuitous aspect of the risk may be lacking entirely, as complete segregation is impossible in a co-existence environment. The most important obstacle to offering liability insurance cover is a tort law regime which allows for compensation of any type of loss irrespective of any wrongdoing by the insured and coupled with a presumption of causation, or – probably even more problematic for insurers – a liability regime which does not allow for predictions of how an admixture case would be solved.

26 In order to avoid the shortcomings of the current insurance market, several countries have already taken steps to introduce a compensation fund which should lead to a better protection of the victims as compared to what tort law can offer so far. The models used vary, but the majority only come into play

when the admixture is purely accidental and not due to some misconduct, the latter cases being left to tort law. Contributions to the funds come primarily from GM farmers, but others are also included in some countries. In Denmark, for example, the State serves as short-term financer of losses exceeding the fund limit until contributions in the following year have been adjusted to enable the fund to reimburse the State for such interim payments. This redress scheme shall be operative for five years, based upon the hope that the insurance industry will be able to take over in the meantime.

27 Compensation funds are typically tailor-made to a particular risk scenario. The procedure to assess a claim and to make payments is often faster. Since the risk group is identified in advance, also the administration of the fund can be designed according to their specific needs. The range of those who pay into the fund may be broader than under other indemnification regimes – not only those immediately concerned will be involved, but also others with a more general interest, including – as could be seen from the example of Denmark – the State which may otherwise not contribute to indemnifying losses (though participation in an insurance pool may be imaginable). State aid rules will define the limits thereto, however. Other such redress schemes do not foresee or even exclude State participation. Compensation funds need not necessarily follow the restraints of actuarial mathematics and therefore can be introduced to fill a gap in the insurance market: Even if commercial insurers feel unable to offer cover, compensation funds may nevertheless (or even just for that reason) be installed in order to at least serve as a temporary solution until the market can take over.

28 Monies accumulated in compensation funds are typically limited, and depending upon the pooling arrangement, the funds may be dried out even before all claims have been settled unless someone backs up the regime by way of a guarantee as in the Danish case. Lack of current information is not the only reason why compensation funds may have to struggle with inadequate risk assessment – depending on the political pressure that tends to precede the formation of such a risk pool, its conditions may not even entirely reflect what is already known. Risk differentiation may also be inadequate in comparison to alternative indemnification models: Those who contribute to the fund are not necessarily those who are in control of the risk that shall be covered, or at least their contribution may not reflect the actual weight of their influence.

29 One major argument against compensation funds is the principle of equality: Why are certain risks (and therefore certain claimants) favoured whereas others are left to the more traditional ways to obtain compensation? Indeed, one may wonder why a comparatively exotic risk such as the economic losses caused by gene flow should deserve to be addressed by a special fund as long as traffic accidents and other, much more frequent loss scenarios are not equally addressed. This question can of course also be posed with respect to any other special solution, for example in the field of tort law.

30 Yet other risk spreading models have been developed in some Member States. In Germany, for example, a feed producer (with the support of seed producers) voluntarily offered to buy the crops of conventional farmers within a certain distance to a GM farmer at the regular price. In the Netherlands, all stakeholders have jointly come up with a contractual compensation scheme which also foresees a fund. These peculiar solutions have been developed on the basis of very specific market conditions, though, which do not necessarily translate well into other settings in different countries.

31 Any such measure to promote co-existence is likely to assist the insurance market to step in at some point. By enabling GM farmers to get started without concerns of unpredictable liability issues in the future, but at the same time without leaving their non-GM neighbours empty-handed in case a loss should indeed occur, data can be gathered over time which is essential for insurers to properly calculate the risk.

32 While it depends upon their statutes how compensation funds and similar redress schemes handle cross-border applications (which allow for tailor-made solutions such as bilateral arrangements), the transboundary loss case in tort law is governed by already uniform rules with respect to the jurisdiction of the court and will soon be falling under a harmonized conflict of laws regime. In essence, therefore, the victim will be able to sue both in her own jurisdiction as well as in the GM farmer's country, and the laws of the victim's jurisdiction will (most likely) apply. Hence, there is no imminent need for further action at Community level to harmonize just the cross-border matters. Apart from other flaws, a substantive solution such as a compensation fund applying to transboundary losses only would violate the principle of equality if these cases are handled differently from national ones.

33 As could be seen already in this overview, the current situation in Europe shows a wide range of solutions to address the issue of GMO admixture. Is such national diversity really desirable, or do we have to strive for harmonization in this field? Harmonization as such can never justify itself, though: The existence of differences between the Member States per se is no sufficient reason to interfere with their national legal systems.

34 This leads to the question whether such diversity has any negative influence on the internal market. The report is at least doubtful whether that is the case. Local market conditions (including in particular the regulatory framework of GM farming) will play a much more considerable role than redress schemes stepping in ex post. Even if one should come to the conclusion on the basis of further economic and sociological data (which cannot be provided by this report) that the internal market may be affected by the existing compensation rules and the diversity thereof, one would still need to pose the question whether a harmonized regime designed to replace existing national solutions would really improve the current situation in this respect.

If this question were answered in the affirmative, the necessary starting point would be the regulatory framework of GM farming which needs to be expanded towards a more precise definition of good farming practice. Clarifications with respect to the labelling thresholds and their impact on the liability issue are also desirable. Otherwise, the Member States will not be in a position to draw the borderlines foreseen by a compensation scheme, for example which losses are compensable, or whether or not the GM farmer is liable for fault. 35

Any choice to interfere with the existing national solutions in a strive to achieve at least some degree of harmonization will necessarily have to be based on a political opinion-forming. The legal perspective itself does not offer sufficient guidance to single out an optimal solution. After all, the tort laws and other compensation systems applicable to the cases under survey here only mirror the attitude of the respective jurisdiction towards GM farming, which is primarily marked by other rules and regulations. 36

The fundamental question whether and to what extent GM farming shall be advanced in Europe may have a bearing on the choice of the ideal liability or other redress scheme. It is important to note, however, that the promotion or limitation of GM farming can also be achieved by other, more direct means, and if the problem is rooted in the general public's fear of or mistrust in genetic engineering, tort law cannot offer any way to overcome that fear or to establish confidence. 37

There are various ways to respond to the risks on which this study is focusing, and so are the possible degrees of harmonizing the current national solutions. The choice behind any option will necessarily be dominated by the replies to the more elementary questions of how to promote co-existence, and how far to go in reaching that goal. 38

Apart from no action at all, the other extreme would be complete harmonization of all aspects of compensating losses arising from adventitious presence of GMOs in non-GM crops. It is hard to imagine how such an exclusive regime can be conceived, even if it were deemed desirable (which is highly doubtful). A lesser degree of harmonization could be achieved by identifying a compensation model for all Member States which leaves certain aspects open for them to regulate individually. This would inevitably lead to different treatment of similar cases in the Member States, though. A very mild form of harmonization (if at all) would be to offer a merely optional model without any need for the Member States to implement it. This will most likely not abolish the differences between the various regimes existing altogether, however, even though some Member States may indeed adjust their systems accordingly. From a cost-benefit-analysis, one may wonder whether establishing such a regime is really needed in light of the fact that the various options currently chosen by the Member States already constitute a full catalogue of possible schemes, and the pros and cons of each of them are clearly visible for those jurisdictions which are considering a re-evaluation of their own system. 39

40 This has to be differentiated from setting a minimum standard that shall apply throughout Europe. The policy choice could be, for example, that non-GM farmers deserve compensation for at least the immediate harmful effects of GMO admixture, and that it should be more or less readily available to them. It should be noted, however, that all national jurisdictions already provide at least for a minimum level of protection via tort law. Further conditions or aspects going beyond this status quo could be included in defining that minimum standard. An alternative target that could be set would be to require Member States to achieve insurability of such risks by reducing the uncertainties created by imprecise legislation, but leave the tools to reach that goal up to them to choose.

41 The key concern of any steps taken towards harmonization – if that should be the political preference – must be on the interaction of any future uniform guidelines or rules with the existing legal systems in general and the tort law regimes in particular.

Summaries of the Country Reports

Vanessa Wilcox

1. Austria

(a) Special liability or compensation regime

The amended Gene Technology Act (GTG) regulates GMO liability for farmers (§ 79k to § 79m). Fault need not be proved and causation is presumed if the claimant can show that the defendant's actions/inactions were prone to cause interference. This presumption is rebutted if the farmer can show that it is probable that the interference was not caused by his action/inaction. In this case the burden of proof lies with the claimant. The loser pays principle applies in respect of costs incurred in establishing causation. The Act does not explicitly provide for any defences but those of the general tort law apply. In the case of multiple tortfeasors joint and several liability is imposed. There are no specific rules for recourse between such tortfeasors and therefore the rule of the general tort law (§ 896 General Civil Code) has to be applied. The Act does not differentiate between crop and seed production. The application of the Civil Code and other relevant provisions remains unaffected. Simultaneous or subsequent claims may be instigated. 1

Lost profits, damage to persons/property and costs incurred to remedy environmental damages are compensable. Injunctive relief and damages are available where GMO interference is above tolerance levels and where substantial impairment is caused. A farmer who suffers loss owing to consumer fear of contamination will face difficulty in establishing actual GMO interference. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Damages are subjectively reviewed and thus encompass increased overhead/indirect costs. In the case of a significant impairment to the environment the plaintiff may ask for payments in advance but is obliged to refund the amount exceeding the market value of the impaired good, if he does not restore the damaged good to its original condition within a reasonable amount of time. No financial limits to liability apply. As in the general tort law, the defendant is not obliged to take out advance cover. In respect of redress procedures, conciliation/mediation must precede litigation. No current/prospective compensation funds exist. 2

(b) General liability or other compensation schemes

3 Under the Civil Code, the claimant must prove unlawfulness, causation and fault. In the case of GMOs, unlawfulness particularly arises where the GTG provisions are breached. Where a protective law is breached (e.g. the GTG), *prima facie* evidence may suffice to establish causation and a reversed burden of proof in respect of fault arises. Joint and several liability applies in the case of multiple, alternative or cumulative causation. The courts, however, will first try to ascertain individual contributions. A right of recourse against contributing tortfeasors exists. Generally, with intervening causation the initial tortfeasor is wholly liable.

4 Where the defendant was negligent, actual damages may be claimed. To claim loss of profits, gross negligence must be established. The quantum of damage is the difference between the market value of a GM-free and GM-affected crop. In recompensing the claimant, his subjective circumstances will be considered. Pure economic loss is recoverable, *inter alia*, in the case of a violation of a protective law if the law is designed to protect such losses. Losses pertaining to customer fear of GMO contamination are unlikely compensable. Injunctive relief is granted for nuisances if specified conditions exist. If the impairment was caused by a licensed activity, compensation according to § 364a ABGB (neighbourhood liability) may be sought. No financial limits to liability apply though contributory negligence would reduce/extinguish the quantum of recoverable damages. The defendant is obliged to take out advance cover. Operators are under no obligation to obtain liability insurance.

(c) Sampling and testing

5 Costs associated with GMO sampling/testing are borne by the farmer where GM presence tests positive or in the case of an admission procedure.

(d) Cross border issues

6 For tortious damages under the GTG, the law of the state where the damage occurred applies. Austrian law applies in the case of injunctive relief if the damaged farmland lies in Austria. For damages based on general tort law, the law of the state where the tortious conduct was performed applies.

2. Belgium

(a) Special liability or compensation regime

7 There is currently no special regime in force for GMO related liabilities though legislative provisions exist which could affect the determination of liability. For example, the Royal Decree of 21 February 2005 specifies conditions for GMO usage which, if contravened, result in the operator being deemed to be at fault. No specific compensation scheme exists as GMO admixture is

unlikely to qualify under a fund established to compensate damage caused by "waste".

8 There are no specific compensation schemes covering the losses resulting from the presence of GMOs in traditional crops at present. However discussions are underway in both the Flemish (in drafting phase) and the Walloon Parliaments (awaiting parliamentary assent). Economic loss and secondary fees (generally, in respect of primary products) will be compensable under the fund, provided all coexistence measures are adhered to. Agricultural enterprises and seed sellers are among some of the candidates under obligation to contribute to the fund. Farmers/operators are expected to be majority contributors making payments in ratio to the peril generated from GMO usage. Compensation payments will be modified to each crop's potential for dispersal and levies will be adapted annually based on compensation paid two years previously. Designated bodies will manage the fund and draft general rules for compensation and officials will carry out requisite sampling for GMO presence.

(b) General liability or other compensation schemes

9 Under the Civil Code, the burden of proof lies with the claimant to show that his damage is recoverable and to prove causation through a person's fault or the defect of a thing. I.e. but for the defendant farmer's actions/inactions his losses would not have arisen. Disregard of GMO legal/administrative prescriptions is insufficient to establish causality. Joint and several liability applies in the case of multiple tortfeasors. Recourse against contributing tortfeasors is permitted. *Force majeure* has to be the exclusive cause before the defendant can be exonerated. Contributory negligence would reduce/extinguish liability unless the defendant acted with intent. A defendant is deemed to be at fault where certain statutory obligations are infringed (freely/consciously) or at the court's discretion, where a general duty of care is breached. Invocable defences include necessity, cause for justification and invincible error. Where the damage was caused by "a thing", a presumption of liability exists against its keeper if the presence of the thing, e.g. a GMO crop, is abnormal in its environs. This strict liability regime would apply in the case of unauthorised or adventitious GMO presence. *Force majeure* or wrongful acts of third parties are possible defences.

10 A claim may exist against a "producer" under the Belgian Product Liability law but the provisions apply to defective products put into circulation and are thus unlikely invocable against a GMO farmer. Fault need not be demonstrated. Defences include third party/contributory negligence. A special strict liability regime imposes the theory of disorder of vicinities to limit compensation to that part of the damage which exceeds the limits of normal nuisances *in that* vicinity.

11 The quantum of damage is the price difference between a GMO affected crop and one without. Though more difficult to prove, economic losses are com-

pensable provided like other losses, the damage is certain and not previously indemnified, foreseeable (in some cases), personal and causation exists. Losses attributable to consumer fear of contamination or losses caused where contamination is confirmed though confined to one regional farmer are compensable though difficult to establish. Damages are fully compensable and cannot be punitive. The claimant must mitigate his losses though is under no obligation to obtain advance cover/liability insurance. No general compensation schemes would apply here.

(c) Sampling and testing

12 The Royal Decree of 21 February 2005 mandates monitoring, sampling and testing for GMO presence. Costs incurred in the course of legal proceedings are allocated to the "succumbing" party.

(d) Cross border issues

13 No specific provisions aimed at resolving cross-border cases exist. Under the Brussels I Regulation, the courts of the place where the harmful event occurred have jurisdiction. For cases falling outside the Regulation, if the damage occurred in Belgium, Belgian courts have jurisdiction. The law of the country where both parties are resident, where the entire liability components of the wrongful act arose or the law with the closest relation applies.

3. Cyprus

(a) Special liability or compensation regime

14 There is no special liability or other compensation regime in force. The use of GM crops is currently prohibited.

(b) General liability or other compensation schemes

15 Actions exist under the Civil Wrongs Law, negligence and nuisance. Under the Civil Wrongs Law, a claim for GMO damage would be an action "on the case". An act/omission, fault (intention/negligence) and damage must be proved. Causation, based on the "but for" test must be established by the claimant, taking remoteness into account. Where specific conditions are met, *res ipsa loquitur* may apply such that the claimant need not prove causation or fault. There are no specific provisions regulating costs incurred in establishing the former. For multiple tortfeasors, joint and several liability applies. In respect of concurrent causes, the tortfeasors are liable to the extent of their contributions.

16 For negligent actions, either the reasonable person standard or the standard of a professional in the defendant's field is imposed to determine whether a breach of duty has arisen. Damage and causation must also be established. Public nuisance may give rise to a civil action where the claimant suffers *special*

damage. Unreasonable interference with the reasonable use or enjoyment of the claimant's land is actionable under private nuisance. Damage is a pre-requisite to compensation. Where strict liability applies, defences include inevitable accident and regulatory permit. The aim of damages is to place the claimant in the position he would have been in but for the tortious act. Physical damage to property and consequential losses are recoverable. Pure economic loss is not compensable thus losses caused by consumer fear of contamination are not compensable. There is no financial limit to liability. The claimant must mitigate his losses. No general compensation schemes are applicable here.

(c) Sampling and testing

No specific rules cover costs associated with sampling and testing for GMO presence. 17

(d) Cross border issues

There are no special jurisdictional or conflict of law rules in force. Cypriot courts have jurisdiction, *inter alia*, where a writ is served on the defendant in the jurisdiction or where leave is granted to serve a writ outside the jurisdiction e.g. where land is situated in Cyprus. 18

4. Czech Republic

(a) Special liability or compensation regime

No legislative measures currently provide a special liability regime for GMO related damage. The laws concerning GMOs only provide for basic provisions dealing with the production of GMOs, which may indirectly influence such liability. 19

(b) General liability or other compensation schemes

Under the Civil Code, breach of duty/statutory provisions, causation, damage and often, fault must be established before liability exists. In civil cases, the theory of adequacy requires the claimant to prove that the wrongful act is a common result of the damage as objectively foreseeable and that no intervening act has broken the chain of causation. This theory also applies to multiple causes and multiple tortfeasors are jointly and severally liable. Alternative, potential or uncertain causation are dealt with circumstantially. 20

Liability of GMO farmers would qualify as a case of strict liability, namely damage caused by operational activities under sec. 420a Civil Code so that no fault is required. Defences under sec. 420a include contributory negligence or causation by an independent unavoidable event. Other general defences e.g. the fulfilment of a legal obligation or acquiescence by the claimant may also 21

be invoked. The Civil Code regulates ownership rights so that adventitious GMO presence may constitute an unreasonable annoyance or restrict the user of neighbouring land – both of which are actionable.

22 Damage is defined as any loss of property which can objectively be calculated in monetary value. It is subdivided into actual damage and loss of profits. The former covers costs incurred in the destruction of property or the reduction in property value together with consequential losses and the latter covers loss of an anticipated rise in property value. While independent, both are recoverable. Although uncertain, pure economic loss may fall under either damage category provided certain conditions are fulfilled. It is doubtful whether losses owing to consumer fear of GMO contamination would be compensable in the absence of actual admixture owing to the indirect nature of the damage. Foreseeability determines compensability of damage and such a loss would not qualify as foreseeable. In general, there are no financial limits to compensation though certain circumstances may warrant a reduction at the court's discretion provided the defendant did not act with intent. Compensation for non-pecuniary injuries is subject to certain limits set in the statutory instruments. However, the judge may use his discretionary power to increase the amount of compensation payable. Though elective, a GMO farmer may subscribe to an insurance scheme offered by commercial firms. No applicable compensation regime exists.

(c) Sampling and testing

23 Specific provisions require monitoring and by inference, the GMO farmer bears associated costs. The farmer must also compensate the state for any corrective measures taken.

(d) Cross border issues

24 No special jurisdictional or conflict of law rules exist. Thus in the absence of a bilateral treaty, private international law and procedure law apply. For GMO related damage, at the court's discretion, either the laws of the place of the damage or the place where a fact establishing the claim for damages arose would apply – whichever is closest.

5. Denmark

(a) Special liability or compensation regime

25 The Coexistence Act establishes a special compensatory regime applicable to GMOs. For causation, proof of GMO presence and its proximity to a non-GM crop suffices. In the case of ecologically cultivated crops only GMO presence is required. Inferably, the burden of proof lies on the claimant and once established, causation is irrebuttable. It is not a liability regime as compensation is paid regardless of fault. However, compensation can be reduced if the claimant was negligent, wilful or acted in such a way as to inhibit recourse by the state

from the GMO cultivator. In general the same criteria apply to crop and seed production. The regime is not exclusive though double recovery is impermissible.

Liability is limited to consequential reductions in sale prices, sampling expenses and remedial costs (ecological). Actual admixture is required under the Act, thus general tort law rules regulate losses due to consumer fear of GMO contamination or losses caused where contamination is confirmed though confined to a single regional farmer. There are no financial limits to liability. GMO presence must be notified to the Plant Directorate within a specified timeframe. The latter manages the fund, hears claims and conducts sampling. Injunctions may be granted before/after admixture occurs. The regime is partly funded by the state and will be evaluated in 2007 (including matters of income and expenditure). The state has recourse to the GMO farmer insofar as the farmer would have been liable to the injured party under general rules of tort law. Insurance cover is not obligatory though mandatory annual contributions are made by GMO cultivators to the compensation fund. This regimen is comparable to four other compensation schemes. 26

(b) General liability or other compensation schemes

Alterative actions may be pursued under the Environmental Liability Act, judicially developed strict liability rules, negligence or rules on neighbourhood conflicts. The two latter options are more likely applicable in the case of GMO liability. The burden of proof is on the claimant to establish causation under the *conditio sine qua non* rule. Multiple tortfeasors are jointly and severally liable. In the case of fault-based liability, the claimant must prove breach of duty/negligence. The burden is reversed where statutory obligations are contravened. 27

Damage caused by nuisance over an acceptable threshold level (in *that* specific local) is compensable. Strict liability is not unlikely to apply here. The aim of damages is to put the injured party in the position he would have been in but for the wrongful act thus full compensation is awarded. Damages encompass devaluation of the crops and loss of profits. Pure economic losses are not handled differently. By analogy with neighbourhood conflicts, losses caused by consumer fear of GMO presence or losses caused where contamination is confirmed though suffered by a single regional farmer are not unlikely to be recoverable. There is no financial limit to liability. The claimant must mitigate his losses. 28

(c) Sampling and testing

Claimants under the compensation scheme must cover sampling and testing costs which will be reimbursed if GMO traces are found. No general monitoring is required. 29

(d) Cross border issues

30 No special jurisdictional or conflict of law rules are in force and there are no specific provisions aimed at resolving cross-border cases. The defendant may be sued where he is resident or domiciled. The Brussels Convention applies for cross-border issues so that at the choice of the claimant, the defendant may be sued where he is domiciled or where the harmful act occurred. Generally, the *lex loci delicti* applies.

6. Estonia

(a) Special liability or compensation regime

31 Numerous provisions regulate the use of GMOs including an Act on the Deliberate Release into the Environment of Genetically Modified Organisms which directs compensatory claims to be dealt with under general civil liability rules. No special regimes are currently in force.

(b) General liability or other compensation schemes

32 Unless expressly stated, liability for tortious conduct (including delictual liability) is fault-based. The claimant must establish all elements of claim including causation. The ambit of the *conditio sine qua non* rule is narrowed through the use of elimination and substitution methods. The loser pays principle applies in respect of costs incurred to establish causation. Statutory construction dictates however that liability for GMO admixture is likely strict and more so if GMOs can be regarded as inherently/potentially dangerous. Broadly, if the defendant establishes *force majeure*, contributory negligence or that the item liable for the damage was used consistently with prescribed guidelines/statutes, he will be exonerated. Product liability provisions may also be invoked. Alternative remedies may be sought. Solidary liability applies in the case of multiple tortfeasors. Recourse between contributing tortfeasors is permissible. Environmental clean up provisions exist where the polluter falls short. These are unlikely to compensate GMO victims. In respect of applicable criteria, seed and crop production are undifferentiated.

33 Damages are widely defined as their aim is to restore the injured party to the position he would have been in but for the tortious act/omission. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. The award is reduced if the loss arose out of an obligation not specified by a statutory provision, if full compensation would be grossly unfair, the claimant failed to mitigate his loss or to the extent of contributory negligence. Losses relating to customer fear of GMO contamination and losses arising from contamination that is confirmed though confined to one regional farmer's crops are technically recoverable though causation in the former case must be proved.

Advance cover/liability insurance is not obligatory. Injunctions may be granted against a defendant's intolerable actions. No compensation funds exist. The abatement of neighbourhood nuisance is only actionable if the nuisance is material or contrary to environmental provisions. 34

(c) Sampling and testing

There are no special regulations concerning the costs of testing and sampling of GMOs. If government bodies sample products, the costs will be passed to the operator where GMO traces are found. 35

(d) Cross border issues

There are no special jurisdiction or conflict of law rules concerning civil liability for GMOs, nor are there any other specific provisions aimed at resolving cross-border cases. At the claimant's preference, applicable law is either the law of the state where the tortious act was performed or where its consequences arose. Alternatively, the laws of a state as agreed between the parties or the closest relation laws apply. The courts of the state where the defendant resides have jurisdiction. 36

7. Finland

(a) Special liability or compensation regime

Statutory provisions implementing a special regime for GMO related damage are in force. Under the Environmental Damage Compensation Act (EDCA), the claimant must prove damage and adequate causation though probable causation may suffice. Unforeseeable consequences are not compensable. Joint and several liability applies in the case of multiple causes. Recourse to contributory tortfeasors is permitted. The costs of establishing causation are likely compensable. The regime imposes strict liability though *force majeure* and wrongful acts of third parties are possible defences. Intolerable disturbances taking, *inter alia*, regulatory consents and the local into account may be compensable. Damages may be reduced due to contributory negligence or failure to mitigate losses. 37

The same criteria apply to crop and seed production. The regime is supplemented by general tortious liability rules. Pure economic losses are compensable though recovery of loss caused by the fear of GMO contamination is doubtful except where actual admixture or damage to the environment occurred. The requirement to establish adequate causation may restrict recovery of losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer. Consequential economic losses and indirect costs are compensable. There is no financial ceiling to liability though damages may be reduced where the financial impact would be too onerous on the defendant. It appears liability insurance is optional. Redress is sought in accordance to civil law procedural rules. In certain circumstanc- 38

es, injunctive relief may be granted. There are no current/intended compensation funds.

(b) General liability or other compensation schemes

39 General tort law provisions impose a fault-based liability regime. The burden of proving all elements of fault rests with the claimant though a reversal may arise in some cases. Multiple tortfeasors are jointly and severally liable. Recourse to contributing tortfeasors is permissible. Strict liability applies where certain nuisances are committed. Liability may also exist under the Product Liability Act.

(c) Sampling and testing

40 Mandatory sampling and testing costs are likely borne by the GMO farmer.

(d) Cross border issues

41 At the claimant's choice, either the state where the wrongful act took place or where damage arose have jurisdiction. There are no generally applicable statutory provisions on the choice of law in cross-border cases. At the claimant's preference, either the law of the state where the wrongful act took place or where the damage arose applies.

8. France

(a) Special liability or compensation regime

42 A special compensation regime for economic loss as a result of GMO contamination is pending debate by the National Assembly. Following presidential and parliamentary elections in 2007, however, proposals resulting from a subsequent consultation will presumably replace some provisions of the aforesaid bill. Under the original bill, claims are to be reported to a designated body which has recourse to a defaulting farmer/his insurance cover. A farmer seeking compensation must establish that compulsory labelling under EU/national rules *now* applies to his crops owing to the proximate farming (as defined) of GM crops in the same cultivating season. Matters of causation/multiple causes are irrelevant for compensation claims under the regime. While the insurance market in this field develops, trade organisations and farmers must contribute towards a guarantee fund which operates like liability insurance. Thus GMO farmers are strictly though indirectly liable. Only the difference in value between GM and non-GM crops is compensable. The regime does not prevent alternative courses of action being brought thus claims for other losses can be brought under general liability provisions. Contributory negligence has a reductive effect on awardable compensation. The regime is silent on the possibility of obtaining injunctive relief. Comparable special liability regimen/compensation funds exist though each is particular to its own liability sphere.

Many of the proposals arising out of the consultation are in line with this initial bill however, the basis of liability in the proposals, which is yet to be clarified, may mark a significant divergence from the former. Liability may now be founded on a presumption of fault rather than on strict liability.

(b) General liability or other compensation schemes

43 Depending on whether the defendant is a private or a public entity, liability for GMO damage is governed by general civil or administrative liability principles respectively. The claimant is burdened with establishing causation and loss. The courts deal with causation flexibly which in some instances is presumed and in others no strict proof is necessary. It is always possible that the latter approach could be used where a GMO farmer breaches his administrative/ statutory obligations. Joint and several liability applies in the case of multiple causes. Recourse against contributing tortfeasors is foreseen.

44 For fault-based liability, fault is presumed against unauthorised farmers or where non-compliance with licence/statutory provisions is apparent. Theoretically, a claim against a GM farmer may also exist under Article 1384-1 Civil Code for liability for harm caused by inanimate objects provided control of the object, causation and damage are established. Claims may be brought against recurring and unreasonable levels of nuisance. No fault need be established. Though doubtful, product liability rules may be relevant where the GM plant/ its genes were defective.

45 Damages aim to place the victim in the position he would have been in if the act giving rise to the damage had not taken place. The quantum of damage is the price differentiation between a GMO affected crop and one without. Direct/ indirect losses (if sufficiently certain) and consequential increases in overhead costs are recoverable. It would be difficult for a farmer claiming compensation for losses caused by consumer fear of GMO contamination to prove requisite elements of his case. Liability insurance is discretionary.

(c) Sampling and testing

46 No specific rules deal with sampling and testing costs. Where liability and causation exist, a non-GM farmer may claim sampling and testing costs from the GM crop producer.

(d) Cross border issues

47 There are no special jurisdictional or conflict of law rules in force or planned. In respect of applicable law, *lex loci delicti* applies. Where the tortious act and damage occur in different places the closest relation applies. At the claimant's choice, either the jurisdiction of the defendant's place of residence or the jurisdiction where the harm took place applies.

9. Germany

(a) Special liability or compensation regime

48 A special regime for GMOs establishes a strict form of delictual liability but only has a limited and largely interpretive application to GMO liability which remains regulated under the Civil Code. It does not regulate losses resulting from actual/feared GMO admixture unless contamination arose through research and development schemes or instances where there is limited/no circulatory permission. The claimant must establish damage and causation in line with the *conditio sine qua non* rule. Though rebuttable, it will then be presumed that damage was caused by the crop's modified characteristics. There is no reversal of the burden of proof and the regime leaves the regulation of alternative, potential or uncertain causation to the Civil Code. Joint and several liability applies in the case of multiple tortfeasors. Recourse to contributing tortfeasors is permissible. Contributory negligence and failure to mitigate will reduce damages. Wrongful acts/omissions of third parties are explicitly excluded as defences. Crop and seed production are undistinguished. Generally, other claims may be pursued simultaneously, thus the regime is not exclusive. It defers compensatory matters to the Civil Code.

49 Damages include the price difference between contaminated and non-contaminated crops, indirect costs, remedial costs and loss of future profits (if foreseeable). Proof of actual admixture is necessary, thus losses owing to consumer fear of contamination are unrecoverable. Liability is limited to € 85 million. Injunctive relief is available under property law. The possibility of a mandatory compensation fund, to be state and operator funded, is under review. No recourse will be had to farmers who adhered to requisite safety standards. Marginally comparable regimes exist.

(b) General liability or other compensation schemes

50 Farmers growing GM seeds authorised for general circulation are subject to the rules of the Civil Code. For compensation to arise, infringement of property rights, fault, damage and causation must be established. Joint and several liability applies in the case of multiple causation unless respective contributions can be identified in which case liability is apportioned. Nuisances must be substantial (taking customary use into account) and abatement measures must be economically reasonable before an injunction/damages will be awarded. The scope and recoverability of damages are parallel to the special regime discussed above. There are no financial limits to liability. Liability insurance/advance cover are not mandatory. No applicable compensation scheme exists. A claim may exist under product liability provisions.

(c) Sampling and testing

There are no specific rules which cover costs associated with sampling and testing. Food producers bear monitoring costs. Sampling/testing costs are recoverable as part of the compensation claim if actual GMO presence exists. 51

(d) Cross border issues

There are no special jurisdiction or conflict of law rules in force or planned. Applicable jurisdiction for cross-border contamination is either Germany or the country where the damage arose, at the claimant's choice. *Lex rei sitae* i.e. the law where the property is situated applies. 52

10. Greece

(a) Special liability or compensation regime

No special liability regime completely regulates GMO liability. For the time being the relevant matters are dealt with under Law 1650/1986 on the protection of the environment, which imposes a type of risk liability on damage caused to a legally protected good or interest of the plaintiff through the impairment of the environment and gives the defendant the defences of act of God or of malicious act of a stranger as the only defences in order to be discharged of liability. There are no financial limits to liability. No compensatory funds exist though an environmental fund is currently being considered by some scholars. 53

(b) General liability or other compensation schemes

Claims may be brought under tort law, neighbourhood law or under consumer protection provisions. Ordinarily, for tortious liability to arise, an unlawful and culpable act/omission (civil delict), damage and adequate causation must be established by the claimant. For environmental cases an effort is being made to reverse the burden of proof so that culpability and causation are presumed. The claimant need only prove minimum causality. Generally, joint and several liability applies in respect of multiple tortfeasors. Normally the discharge of statutory or administrative obligations acts as a defence but this should not be available to GMO operators. Damages encompass depreciation in property value, future and indirect losses and lost profits if foreseeable. A farmer who suffers loss owing to consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though confined to a single regional farmer are likely unrecoverable. There are no financial limits to liability though contributory negligence will likely reduce compensation. Insurance/advance cover is optional. Nuisances, though in principle actionable if substantial interference by an unconventional use of the land results, are also actionable if they arise from emissions which, albeit common and ordinary for the area, contravene the constitutional principle of preserving a viable vital area and infringe the neighbour's right to use his property. 54

(c) Sampling and testing

55 Specific rules which cover costs associated with sampling and testing are found in the Joint Ministerial Decision No. 332657/2001 and require seed enterprises to bear the cost of re-examination of certain kinds of seeds (sugar beet, rape, maize, soybean, cotton, and certain varieties of tomato) if the results of the first examination are challenged. For the farmer who has sustained damage from the release of GMOs, general tort rules would apply and costs associated with sampling and testing for GMO presence borne by him are recoverable as part of a claim if the tests prove actual GMO presence.

(d) Cross border issues

56 There are no special jurisdiction or conflict of law rules in force or planned. Generally, the courts where an immovable property lies have jurisdiction. The Brussels Convention applies with respect to contracting states so that at the claimant's choice, either the courts of the state where the tortious conduct took place or the courts of the state where the harm arose have jurisdiction. The law of the state where the tortious act was committed applies.

11. Hungary

(a) Special liability or compensation regime

57 The Genetic Technology Act refers cases of admixture to the general strict liability rules for dangerous activities (§§ 345–346 Hungarian Civil Code). Liability is fault-based, however, if the claimant had consented to the neighbour's GM farming in advance.

(b) General liability or other compensation schemes

58 Under the Civil Code, the claimant must establish damage and causation while unlawfulness of damage and accountability of the tortfeasor (fault) are presumed. The burden of proof concept is not rigid and a reversal is possible at the court's discretion so e.g. damage may be presumed in certain circumstances. The defendant will be exonerated where he exercised the expected standard of conduct or acted in accordance with statutory prescriptions. Causation is a complex though flexible element of claim. The "but for" test and other limiting considerations apply. There are no specific rules allocating the cost of causation.

59 The Civil Code provides a strict liability regime for dangerous activities which may apply if GMOs can be categorised as such. Causation must be proven by the claimant. If the damage fell outside the scope of the dangerous activity and was unavoidable e.g. acts of God, a defence exists. Contributory negligence will reduce the defendant's liability. A claim may exist under the Product Liability Act.

There are no special rules on alternative, potential or uncertain causation. Joint and several liability applies in respect of multiple tortfeasors. Recourse to contributing tortfeasors is permitted. Established statutory rules defining the required conduct for GMO agriculture would only be instructive where the provision expressly states that adherence to it excludes liability. General tortious remedies are available where an act causes unnecessary disadvantage to neighbours. Depreciation in the value of property, pecuniary/non-pecuniary losses and remediation costs are recoverable. A claim by a farmer who suffers loss as a result of consumer fear of GMO admixture or losses caused where contamination is confirmed though limited to a single regional farmer would be difficult to establish as causation is indirect. Recovery of pure economic losses is limited through causative concepts. There are no financial limits to liability. The court may theoretically mitigate the tortfeasor's liability, but this is rarely ever used in practice. Insurance/advance cover is required where activities likely to cause environmental damage are undertaken. No general compensation schemes exist. 60

(c) Sampling and testing

There are no special rules on costs relating to monitoring or sampling/testing for GMO presence. Generally, such costs are borne by the party carrying out the sampling/testing. The possibility of cost recovery if GMO presence is found is uncertain. 61

(d) Cross border issues

There are no special jurisdiction or conflict of law rules in force. At the victim's discretion, either the law where the tortious conduct was committed or where the harm occurred applies. If both parties are resident in the same state, the law of that state applies. 62

12. Ireland

(a) Special liability or compensation regime

There is currently no special liability or other compensation regime with respect to GMOs in force, and neither is one planned. 63

(b) General liability or other compensation schemes

GMO actions may be pursued under the heads of nuisance, negligence or the rule in *Rylands v Fletcher*. It rests with the claimant (in respect of all three heads) to establish both factual causation i.e. the "but for" test and legal causation. Legal causation is dependent on proximity of harm and cause. Generally, the defendant would be liable for all reasonably foreseeable damage arising from his actions. Where specific conditions are met, *res ipsa loquitur* may (at the court's discretion) apply in negligence actions such that the claimant need not prove negli- 64

gence and possibly causation. The defence of deliberate act of third parties may be invoked. In the case of potential causes, if the cause materially increased the peril of harm, legal causation exists albeit factual causation remains unproven. Joint and several liability applies in the case of multiple tortfeasors.

65 *Public nuisance* is actionable where damage in excess of that suffered by the public exists. Broadly, under *private nuisance*, the claimant must establish an interest in the land and unreasonable interference with his use/enjoyment of it. It is no defence that the defendant took all reasonable steps to reduce his effects or that the nuisance arose out of matters beyond his control. Thus nuisance is comparable to strict liability. The nature of the locality and utility of the defendant's conduct are instructive in determining reasonability. Abnormally sensitive activities are disregarded. *Force majeure*, consent and statutory authority are possible defences.

66 The rule in *Rylands v Fletcher* imposes strict liability where a person uses his land in a non-natural way to collect/keep anything likely to do mischief if it escapes. The likelihood of its application to GMO damage is questionable as the rule is often invoked in respect of one-off damages, the GMO crop must constitute a non-natural thing and this depends on the local of its cultivation, the harm must have been unforeseeable and the rule in itself is infrequently applied. Defences include unforeseeable third party negligence, *force majeure* and statutory authority/licence to keep the object on the defendant's land (provided the defendant operates within the prescribed provisions and was not negligent). For negligence, duty of care, breach of duty and damage must be established. In determining whether a duty exists, foreseeability of harm, proximity of relationship and policy issues are taken into consideration. Nuisance actions are *sui generis* thus whether a GMO farmer owes a duty of care requires inferences to be drawn from accepted cases. To establish breach, the conduct of the GMO farmer must have fallen below the standard of like farmers. The observance of administrative/statutory rules though inconclusive is indicative of compliance with duty of care.

67 Except under nuisance actions where an inference arises, actual harm must be proved. The aim of damages is to restore the claimant to the position he would have been in but for the defendant's conduct thus depreciation in property value and consequential costs, *inter alia*, are recoverable. The claimant must mitigate his losses. For nuisance actions, loss of enjoyment/use of land is compensable. Where there is no physical harm, pure economic loss is not compensable. No financial limits to liability exist. Insurance/advance cover is not mandatory. An injunction may be sought for nuisance actions, is seldom granted in negligence actions and is an unsuitable remedy for a *Rylands* action.

(c) Sampling and testing

68 Sampling costs are recoverable under a successful legal action.

(d) Cross border issues

Irish courts have jurisdiction over tortious acts committed in the jurisdiction or where summons are served on the defendant who is temporarily resident in Ireland except where the Brussels Convention applies. The law where the tort occurred applies. 69

13. Italy

(a) Special liability or compensation regime

A special liability and compensation regime regulates economic damage resulting from adventitious GMO admixture, however, certain necessary implementation and specification measures at regional and local level have not yet been taken. These were necessary to enable the cultivation of GMOs. Certain provisions of the special regime have been declared unconstitutional. For liability to arise, fault, causation, damage and capacity of the tortfeasor must exist. Though rebuttable, fault is presumed where obligations prescribed in regional coexistence/mandatory business management plans are breached. It is unclear whether general provisions apply so as to require the claimant to prove causation or if damage is presumed where a defendant contravenes coexistence measures. The regime does not regulate causation or multiple causes. 70

Other sources of compensation exist and the regime recommends the establishment of regional/provincial funds. The existing National Solidary Fund is exclusively state funded. Like criteria apply to crop and seed production. It is unclear whether the regime is exclusive or whether it overlaps with the general liability regime. The latter is likely the case. Pending determination, the scope of compensable damages is regulated under the Civil Code. The regime does not regulate loss owing to consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though confined to one regional farmer. It is silent on injunctive relief. No financial limits to liability apply. The regime is comparable to provisions for liability for dangerous activities under the Civil Code. 71

(b) General liability or other compensation schemes

Damages encompass actual loss and the loss of profits (economic detriment). Injunctions may be sought against the excessive emission of substances (including GMOs) from neighbouring property. Joint and several liability is applicable in the case of concurrent causes. The cultivation of GM crops may be categorised as a "dangerous activity" so that a quasi-strict liability regime applies. It appears that only losses deriving from actual admixture would be recoverable. Thus loss owing to consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though confined to one regional farmer are unlikely compensable. Compliance to statutory rules defining required conduct does not guarantee exoneration. 72

(c) Sampling and testing

73 There are no specific rules which cover costs associated with sampling and testing for GMO presence as the cultivation of GM crops is prohibited.

(d) Cross border issues

74 There are no special jurisdiction, conflict of law rules or other specific provisions aimed at resolving cross-border cases of admixture. At the claimant's preference, either the law of the state where the wrongful act took place or where the damage occurred applies. Under the Brussels Convention persons domiciled in a Contracting State shall be sued in the courts of that State or in the courts of the State where the harmful event occurred.

14. Latvia

(a) Special liability or compensation regime

75 At present, there are no special liability or other compensation regimes which specifically address liability for GMOs. Liability arising from GMO admixture and damage will continue to be regulated under general tort law. There are no existing specific compensation funds set up to contend with the consequences of GM crop admixture.

(b) General liability or other compensation schemes

76 The claimant ordinarily bears the burden of proving damage but this is reversed in certain circumstances e.g. where the defendant failed to apply proper segregation/legal measures. Joint and several liability applies where ascertainment of the extent of each tortfeasor's actions is unfeasible. Where strict liability is imposed *force majeure*, wrongful acts/omissions of third parties or contributory negligence are possible defences. No special rules apply to cases of nuisance.

77 Damage is defined as "any deprivation which can be assessed financially". The aim of damages is *restitutio in integrum*. Only actual damage, including lost profits is compensable. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Losses resulting from consumer fear of GMO contamination, *force majeure* related damage and avertable losses (except where the defendant acted maliciously) are not compensable. If a direct/indispensable causal link between contamination of a farmer's crops and losses suffered by other farmers in the same region exists, the latter's losses could be recoverable.

78 Liability insurance/advance cover is not obligatory. No financial limits to liability exist. There are no general applicable compensation schemes in force.

(c) Sampling and testing

No specific rules cover costs associated with the sampling and testing for GMO presence. Ultimately, the loser pays principle applies in respect of such and other costs. If the court appoints an expert, related costs are recoverable if tests prove GMO presence. 79

(d) Cross border issues

No current or prospective special jurisdictional or conflict of law rules exist, nor are there any other specific provisions aimed at resolving cross-border cases. The law of the place where the wrongful act was committed applies. Actions against a defendant shall be heard by the courts of his place of residence/location. 80

15. Lithuania

(a) Special liability or compensation regime

At present, there are no special liability or other compensation regimes which specifically address liability for GMOs. In accordance with Commission Recommendation 2003/556/EC, the Rules on the Coexistence of Genetically Modified, Conventional and Organic Crops are currently undergoing legislative drafting. Notwithstanding the prospective approval of these Rules, liability arising from GMO admixture and damages will continue to be regulated under general provisions of the Lithuanian Civil Code. There are no existing specific compensation funds set up to contend with the consequences of GM crop admixture. 81

(b) General liability or other compensation schemes

In the case of an alleged GMO contamination, general liability provisions under the Civil Code apply which require the claimant to establish causation and damage. Wrongful act and fault are presumed. The causative burden is irreversible. Joint collective liability applies in the case of multiple causes though the defendant may rebut this liability by proving lack of causation. Strict liability may also apply as GM farming may qualify as a "hazardous activity" within the meaning of Art. 6.270 Civil Code. *Force majeure*, wrongful acts of the claimant or gross contributory negligence of the claimant would be available defences. Lithuanian jurisprudence does not provide for special GMO rules applicable to cases of nuisance or similar neighbourhood problems. 82

All losses are compensable as the aim of damages is to put the claimant in the position he would have been in had the tort not occurred. Damages are extensively defined and encompass direct losses (meaning harm to property and/or expenses suffered), loss of future profits, reasonable sums expended in mitigation and costs incurred in assessing the extent of the damage including 83

expert fees. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Pure economic loss is handled on a general basis. Compensation may be awarded where fear of GMO presence in non-GM crops exists or where losses arise when contamination is confirmed though confined to one regional farmer on the proviso that the aforementioned elements i.e. a wrongful act, causation, damage and fault are established.

84 Damages may be mitigated at the defendant's request or at the court's discretion. However, the court would take into account the nature of the liability, the parties' relationship and their respective financial positions. Reductions cannot exceed the amount which the debtor has or ought to have obtained under compulsory insurance. Unless specified by law, liability insurance/advance cover is voluntary.

(c) Sampling and testing

85 There are no specific rules which cover the costs associated with general monitoring, sampling or testing for GMO presence. These are initiated by state bodies and are financed by the state. A petitioner's claim for damages would encompass reasonable costs incurred in the sampling and testing for GMO presence.

(d) Cross border issues

86 There are no existing or proposed special jurisdictional or conflict of law rules or any other specific provisions aimed at resolving cross-border cases. At the choice of the claimant, either the law of the state where the wrongful act took place or where the damage arose will apply. Alternatively the closest relation counts. If both parties are domiciled in the same state, the law of that state is applicable.

16. Luxembourg

(a) Special liability or compensation regime

87 A Coexistence Law will regulate conditions for GM crops and cultivation, but will not include special rules on liability, which will continue to be governed by general civil law. However, farmers will possibly be required to take out liability insurance.

(b) General liability or other compensation schemes

88 The Civil Code provides that the burden of proof rests on the plaintiff who must establish fault (i.e. the defendant failed to exercise due care and skill as is expected of a reasonable practitioner in his field), damage and causation. Multiple causes are assessed under the principle of *causalité adéquate* under

which the court will identify the most likely cause. The defendant can escape liability by invoking a number of defences including necessity and more appropriately, in respect of GMO admixture, legitimate authority, contributory negligence, acquiesce by the plaintiff or third party liability.

89 The Civil Code recognises the concept of strict liability, applicable where property in a person's custody occasions damage. This regime would be appropriate in the case of GMO admixture though defences may be relied upon by the defendant. If nuisance exceeding normal neighborhood inconveniences can be established, liability can be imposed on the basis of neighborhood disruption. Presumably, this could be relied upon by a petitioner suffering GMO related consequences. An added merit to the claimant in this case is that, third party liability or *force majeure* will not suffice to relieve the defendant of liability.

90 To be compensated, damage must be personal, certain and direct. Luxembourg courts also recognise the concept of "loss of chance" provided the damage is proven. Potential damage e.g. the fear of GMO presence by a farmer's customers cannot be compensated owing to lack of sufficient "degree of present certainty". Pure economic losses are not differentiated from other types of losses.

91 In respect of quantum, damages are reparatory rather than punitive or exemplary. No financial limits to liability or obligations on the plaintiff to mitigate losses exist. A candidate seeking authorisation for the intentional dissemination of GMOs will be accountable financially for authorisation costs, insurance liability premiums and reimbursements for clean up costs expended by public authorities to reverse any damage caused by GMO presence.

(c) Sampling and testing

92 No specific rules cover costs associated with the sampling and testing for GMO presence in non-GM products however, the Draft Coexistence Law delegates to regulations the task of setting out fees payable by seed and plant producers that subject their crops to inspection. The financial outlay on insurance and authorisation as well as sampling and testing costs are capped at prescribed levels. In the case of justified suspicion, costs are recoverable.

(d) Cross border issues

93 There are no existing or proposed special jurisdictional or conflict of law rules. Luxembourg courts take jurisdiction of any tort committed within the state or outside Luxembourg if dictated by rules on private international law. The law of the state where the damage occurred or the state most closely linked to the damage will apply.

17. Malta

(a) Special liability or compensation regime

94 No legislative measures currently prescribe special liability or other compensation regimes for GMO related liability. This lacuna will be reviewed in due course.

(b) General liability or other compensation schemes

95 In cases of GMO contamination, fault-based liability under the Civil Code or provisions under the Environment Protection Act could apply.

96 For causation, the claimant must prove that the tortious act was an immediate and direct cause of the damage though if the tortious act was the only indirect proximate cause, this may suffice. The loser pays principle usually applies in respect of costs incurred in establishing causation. Negligence (not causation) may be presumed where the defendant breaches his legal obligations. Generally, joint and several liability is imposed on multiple tortfeasors. Recourse to a contributing tortfeasor is permissible.

97 The claimant must prove that the defendant fell below the "reasonable person" standard. Failure to meet e.g. GMO statutorily regulated skills/conduct would automatically render the defendant liable though damage and causation would still have to be established. *Force majeure* is an available defence. Contributory negligence would reduce awardable damages. Although strict liability applies under the Consumer Affairs Act, its product liability provisions only relate to defective products.

98 Damages encompass actual loss pertaining to the act, consequential expenses and loss of actual/future earnings – the objective being *restitutio in integrum*. Prospective damage is compensable provided it is certain. There are no financial ceilings on liability. Liability insurance/advance cover is not mandatory. There are no general compensation schemes available under Maltese law. A non-GMO farmer may require a neighbouring GMO-user to take steps to prevent any impending damage or provide security for the same.

(c) Sampling and testing

99 No specific rules govern the costs associated with sampling and testing for GMO presence. Inferably, the GMO farmer is likely to bear such costs in the case of justified suspicion.

(d) Cross border issues

100 There are no special jurisdictional or conflict of law rules or any specific provisions aimed at resolving cross-border cases. Provisions under Regulation

44/2001 apply where the defendant is domiciled in an EC Member State. Otherwise, Maltese courts have jurisdiction (*inter alia*) where the defendant is domiciled, resident or present in Malta. *Lex loci delicti commissi* applies.

18. Netherlands

(a) Special liability or compensation regime

There are no specific rules on liability or compensation for GMO related damage. However, a special covenant between the stakeholders provides for compensation in cases of involuntary admixture. 101

(b) General liability or other compensation schemes

For fault-based liability, four conditions must be met: a wrongful act, which is imputable to the actor, causation and damage. The burden of proof rests with the claimant to prove the existence of a wrongful act (i.e. an infringement of a subjective right, breach of statutory duty or conduct below that seemly in society) except where reasonability, equity or statutory provisions dictate otherwise. *Force majeure*, self-defence or the adherence to statutory prescriptions are possible defences. Imputability is often presumed when an unlawful act is established. The claimant must prove causation under which the "but for" test precedes the "reasonable imputability" test. The former does not apply in the case of alternative or concurrent causes. Causation may be presumed when an act known to be risky causes damage. Joint and several liability applies in the cases of multiple uncertain and concurrent causes. Strict liability applies, *inter alia*, to defective movable objects and to proven hazardous objects used/kept in a trade. It is unlikely that a GMO would be considered a hazardous substance. Defences include intentional wrongful conduct of third parties and *force majeure*. 102

Damage includes patrimonial (actual loss suffered and lost profits) and non-patrimonial damage (if specified conditions are met). Loss as a result of consumer fear of GMO contamination is unlikely compensable though an omission to inform neighbouring farmers of GMO activities may result in the recoverability of such and other losses. Causation would be difficult to establish for losses suffered by farmers where contamination is confirmed though restricted to a single regional farmer. Pure economic losses are not handled differently and are recoverable. GMO admixture may amount to actionable nuisance depending, *inter alia*, on the reasonability of precautionary costs. Compensation is payable in full though specified factors e.g. contributory negligence may result in a reduced award. Except where required by a local authority, liability insurance/bank guarantees are not mandatory. 103

(c) Sampling and testing

There are no specific rules concerning sampling and testing costs. These are recoverable as part of damages. In certain instances, costs are recoverable even 104

in cases of unjustified suspicion provided the GMO farmer is found liable e.g. for breach of statutory provisions.

(d) Cross border issues

105 There are no special jurisdictional or conflict of law rules in force or planned. Under the Brussels I Regulation the courts of the country where the respondent is domiciled have jurisdiction. *Lex loci delicti* applies in respect of applicable law.

19. Norway

(a) Special liability or compensation regime

106 There is no special liability or compensation regime that applies to GMO liability though the Norwegian Act on Genetic Technology contains a general liability clause imposing strict liability for resulting damage. Multiple and potential tortfeasors are regulated under the Pollution Act under which joint and several liability applies. Liability is established if the defendant *may* have caused damage unless he proves lack of causation. No defences are invocable. The same criteria apply to crop and seed production. A simultaneous claim under general tort law provisions may be pursued though double recovery is barred. Pure economic loss is not handled differently. No compensation funds exist. This regime is comparable to product and environmental liability provisions.

(b) General liability or other compensation schemes

107 The *conditio sine qua non* test precedes a comparative analysis of the tortfeasor's conduct to other causal factors before adequate causation is considered. The burden rests with the claimant to prove damage though this may be reversed at the court's discretion. Joint and several liability applies in the case of multiple cooperating tortfeasors. In respect of alternative causation, it must be proved that it is more probable than not that the defendant is the cause of the damage otherwise each causer escapes liability. The concept of uncertain causation is not recognised. Statutory/administrative provisions establishing required conduct are useful in establishing fault. Although unlikely applicable to GMO damage, a strict liability regime is applicable where damage results from "continuous, typical and extraordinary risks".

108 The Neighbour Act will likely apply in respect of GMO nuisances. The quantum of damages includes the price difference between traditional/organic and a GMO contaminated crop. Pure economic losses, unlike damage to property/persons must pass a normative threshold before they are regarded as compensable. Losses owing to consumer fear of GMO contamination and those suffered by other farmers where contamination is confirmed though limited to a single regional farmer are purely economic and lack adequate causal connec-

tion. There are no financial limits to liability though the defendant's financial standing may result in a reduction in damages. There is no general obligation to obtain liability insurance. No general compensation schemes are in operation.

(c) Sampling and testing

There are currently no specific rules which cover costs associated with sampling, testing or the general monitoring of GM crops. Sampling and testing costs are recoverable as part of damages where the defendant is liable. 109

(d) Cross border issues

Under the Pollution Act, the question of compensation shall be decided in the courts of the country where the polluting activity took place. The courts where the direct effect of the damaging activity occurred have jurisdiction. *Lex loci delicti* applies. 110

20. Poland

(a) Special liability or compensation regime

A legislative provision due to be amended regulates liability for GMO damage. Liability is strict though defences exist: *force majeure* and where exclusive, contributory negligence and wrongful acts of third parties. Compliance with established legislative rules is no defence. Causation is regulated under the Civil Code though under the current regime the defendant may, at his expense, be required to adduce evidence to ascertain the extent of his liability. The same criteria apply to crop and seed production. The regime is not exclusive. It overlaps with provisions under the Environmental Protection Law. The scope of recoverable damage is delegated to the Civil Code. Where legislated, security for potential damage in the form of a deposit, bank guarantee or insurance policy would be mandatory. The regime is comparable to other regimes. 111

(b) General liability or other compensation schemes

For liability to arise, fault, causation and damage must exist. To establish fault, the GMO farmer must have fallen below the standard expected of a person in his profession. Alternatively, liability is established through the failure to comply with statutory rules defining conduct. The burden rests with the claimant to prove the *conditio sine qua non* rule in respect of causation and that the damage was a normal consequence of the cause. Joint and several liability applies in the case of multiple tortfeasors. Alternative, potential or uncertain causation are addressed by the requirement to establish adequate causation. Damage to persons, property, pecuniary and non-pecuniary losses are compensable. Full compensation is awarded though damages may be mitigated. The depreciated value of the non-GMO product and indirect costs are covered. Pure economic 112

loss is not compensable unless, *inter alia*, it comes within the ambit of lost profits. Proof of actual damage is required hence loss of profits owing to fear of GMO admixture or losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer are compensable if adequate causation is proved. There are no financial limits to compensation. Injunctive relief is available. Excessive interference is actionable under property law. There is no obligation to obtain insurance/advance cover. No general applicable compensation schemes exist.

(c) Sampling and testing

113 Testing, sampling and monitoring costs are to be borne by the GMO operator. Such costs if incurred to mitigate damages are recoverable. They are also recoverable where no admixture exists e.g. if the traditional/organic farmer suffers economic loss as a result of price drops pertaining to confirmed regional GMO presence.

(d) Cross border issues

114 There are no special jurisdictional or conflict of law rules in force/planned. The law of the state where the tort occurred applies.

21. Portugal

(a) Special liability or compensation regime

115 There is currently no special liability regime yet in force however several possible provisions may be invoked including those under the Frame Law on Environmental Protection which impose strict liability for damage caused to a thing through the impairment of the environment. Causation and damage must be established. Act of God and contributory negligence (if gross/intentional and exclusive) serve as defences. Compliance with administrative/statutory requirements will not exonerate a defendant though licences may serve to justify his behaviour. The same criteria apply in respect of crop and seed production. Unless expressly regulated, pure economic loss is not recoverable. Actual admixture is required thus fear is only compensable if there is an imminent threat to the environment. The requirement to establish causation may hinder recovery of losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer. Injunctive relief is available.

116 Provisions requiring a compensation fund to be set up for economic damage arising from GMO contamination were pending approval at the time of drafting these summaries. A fund covering adventitious contamination above the 0.9% threshold has now been set up. No governmental funding is available. Recourse from those responsible for the damage is possible. The regime is not exclusive thus claims may also be brought under general tort provisions.

(b) General liability or other compensation schemes

For liability to exist, an unlawful act, causation and damage must be established. Breach of statutory duty or failure to meet an objectively conceived standard might be sufficient to establish fault. The latter is presumed where breach arises out of failure to adhere to statutory provisions which expressly define required conduct. The burden lies on the claimant to prove adequate causation. If legislative provisions are aimed at protecting specified interests, causation is easier to establish. The Code is silent on costs incurred in establishing causation. Multiple tortfeasors are jointly liable. Alternative, potential or uncertain causation are not statutorily regulated though a potential tortfeasor is likely to be exonerated. 117

Damage includes actual positive damage, loss of profit and future loss (if foreseeable). Fear of GMO contamination is not actual damage thus resulting losses are unlikely compensable. Insurance cover is mandatory for certain specified (high risk) activities. There are no financial limits to compensation though contributory negligence and the defendant's financial status (at the court's discretion) may warrant mitigation of damages. A GMO farmer may seek an abatement order and compensation for nuisance for, *inter alia*, a substantial impairment to the use of land. Fault need not be established. 118

(c) Sampling and testing

There are no specific rules on sampling and testing which under draft rules are to be borne by the claimant. These are likely recoverable if actual GMO presence is proved. The GMO farmer must bear monitoring costs. 119

(d) Cross border issues

There are no special conflict of law rules. Portuguese courts have jurisdiction, *inter alia*, over immovables in Portugal, if the claimant resides or if the tortious act was committed in the jurisdiction. The law of the state where the main conduct that caused the damage or where the effects of the damage occurred applies. Where the claimant and defendant are resident in the same country, the law of that country is applicable. 120

22. Slovakia

(a) Special liability or compensation regime

A 2006 Act on genetically modified agricultural production refers liability issues to tort provisions of the Civil Code and the Commercial Code. No special compensation regime for GMO liability is in force. In the case of GMOs, where damage resulting from the defendant's business operations (as defined) and causation are established, strict liability is imposed. Fault is presumed. The wrongful act of third parties is a possible defence. The same criteria are appli- 121

cable to crop and seed production. The regime is not exclusive. Other statutory provisions also exist which regulate the obligations of GMO operators.

(b) General liability or other compensation schemes

122 Breach of duty, damage and causation must be established. Fault is presumed. *Conditio sine qua non* is one of the tests used to establish causation. Joint and several liability applies in the case of multiple tortfeasors. Damages encompass lost profits, remedial costs and the difference in value between a GMO admixed crop and a traditional/organic crop. A farmer's losses due to fear of GMO contamination are likely compensable. Losses suffered by other farmers where contamination is confirmed though limited to a single regional farmer are recoverable if causation can be proved. To be relieved, the defendant must establish that the damage was caused by an unavoidable event not generated by the operation of his business or by contributory negligence. Excessive nuisances are actionable. There are no financial limits to liability. Insurance/advance cover is not mandatory. No applicable compensation funds exist.

(c) Sampling and testing

123 There are no specific rules which cover costs incurred in the sampling and testing for GMO presence in other products. Such costs including costs associated with mandatory monitoring are presumed to be borne by the GMO operator.

(d) Cross border issues

124 No specific provisions aimed at resolving cross-border cases exist. Tort claims are governed by the law of the place where the damage occurred or the place where any circumstances establishing the right for compensation arose.

23. Slovenia

(a) Special liability or compensation regime

125 A fault-based liability regime regulates the use of GMOs though liability issues are delegated to the Civil Code. Causation may be established due to failure to comply with administrative obligations. There are no financial limits to liability. Insurance is not mandatory. No compensation funds exist. Injunctive relief is available. The criteria for crop and seed production are undifferentiated. The state is responsible for drafting measures to minimise/prevent damage caused by GMO activities. If it fails to meet its obligations, then it could be held subsidiarily liable. Recourse would then be taken against the responsible tortfeasors.

(b) General liability or other compensation schemes

126 The claimant must prove an illegal act, damage and causation. Fault is presumed if damage was caused intentionally or negligently. The defendant must

then demonstrate that he satisfied the requisite standard of care including those prescribing conduct expected of a GM farmer. The main test for causation is *conditio sine qua non*. Joint liability applies in the case of multiple tortfeasors.

The Civil Code also provides a strict liability regime for hazardous activities where causation is presumed though damage must be proved. *Force majeure*, wrongful acts of third parties and contributory negligence are possible defences. Excessive nuisances including GMO admixture (taking account the local) are actionable. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Pure economic losses are not handled differently. Actual damage must exist, thus losses caused by consumer fear of GMO contamination and losses suffered by other farmers where contamination is confirmed though restricted to one regional farmer are not actionable though the farmer may seek compensation for his "tarnished reputation". There are no financial ceilings to liability. Insurance is not mandated by law. A claim may also exist under product liability provisions. Injunctive relief is available. 127

(c) Sampling and testing

There are no special rules on costs associated with sampling and testing for GMO presence. Such costs would be borne by the requisitioning party though are likely recoverable in the case of justified suspicion. 128

(d) Cross border issues

Either the law of the state where the act was committed or the law of the state where the damage occurred is applicable – whichever is most favourable to the defendant. 129

24. Spain

(a) Special liability or compensation regime

There is no special liability or compensation regime in force which address liability for GMOs. 130

(b) General liability or other compensation schemes

The claimant must prove fault (the consequences of which must have been foreseeable) and causation – both factual (under the equivalence theory) and legal (usually according to the theory of adequate causation). In proving fault, the existence of provisions establishing statutory conduct is inconclusive. In theory, the burden may be shifted in circumstances where it is easier for the defendant to disprove causation. Joint and several liability apply in respect of multiple tortfeasors and concurrent causes. In the case of damage caused by 131

an undefined member of a group, all potential tortfeasors may be held liable provided that it is proved that one of them caused damage. Strict liability provisions e.g. under the Product Liability Act may be invoked however, these are unlikely to apply in respect of GMO admixture.

132 Specific legal rules apply in certain regions. According to Catalan law, repeated nuisances are actionable if arising out of abnormal uses of land, are substantial and out of line with local customs and regulations. Abatement measures, if financially onerous, may prevent the granting of injunctive relief or compensation. Under the general Spanish tort law regime, damages aim to restore the claimant to the position they would have been in but for the tortious conduct. It includes mitigation costs and loss of earnings. The concept of pure economic loss is not recognised as a separate head of damages. Losses caused by GMO fear of contamination are unlikely compensable. There are no financial limits to liability. Farmers are under no obligation to obtain liability insurance/advance cover. There are no existing general compensation schemes.

(c) Sampling and testing

133 There are no specific rules on the costs of sampling and testing. Such costs are unrecoverable notwithstanding actual GMO presence is detected though they may be compensable if categorised as mitigation expenses.

(d) Cross border issues

134 There are no specific provisions concerning cross-border issues. The law of the place where the tortious act took place applies.

25. Sweden

(a) Special liability or compensation regime

135 There is no special liability or compensation regime in force. The possibility of such regulation is currently being considered.

(b) General liability or other compensation schemes

136 GMO damage could be actionable under the Environmental Code (strict liability) or under a strict liability regime formulated by the courts. Under the former, *force majeure* is unlikely to avail the defendant. General liability rules can also be invoked under which the claimant must prove negligence and causation. Though inconclusive, violations of statutory or other duties point towards negligence. Causation is not statutorily regulated thus the courts take a pragmatic approach to it. The *conditio sine qua non rule* applies in certain instances. The burden of proof is rarely shifted though the threshold for causative proof could be lowered e.g. in the case of multiple causes. Alternative, potential or uncertain causation are unregulated. Joint and several liability applies in the case

of multiple tortfeasors. Pure economic loss is treated differently from other losses. Losses of a farmer whose customers fear GMO contamination or losses caused where contamination is confirmed though restricted to a single regional farmer are compensable if the other conditions for liability exist. The price difference between contaminated and non-contaminated crops, future losses and testing costs are compensable. There are no financial caps on liability though damages may be mitigated if overly burdensome on the defendant.

(c) Sampling and testing

No specific rules cover costs associated with sampling and testing for GMO presence in other products. Ultimately, such costs are borne by GMO users. 137

(d) Cross border issues

No special conflict of law rules are in force or planned. The court where the harm was caused or where it occurred has jurisdiction. *Lex loci delicti* applies in respect of applicable law. 138

26. Switzerland

(a) Special liability or compensation regime

Statutory provisions impose strict liability on authorised persons for damage caused through the modification of genetic material. Damage is presumed without taking fault/negligence into consideration. Authorised persons have recourse against the GMO operator. 139

The claimant must prove causation. Multiple causes and the recovery of costs incurred in establishing causation are not expressly regulated under the regime. Act of God, gross misconduct of third parties or the injured party serve as defences. There is no reversed burden of proof. The same criteria apply in respect of crop and seed production. Damage includes actual loss of property and personal and environmental injury. Though at the court's discretion, the value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Loss caused by consumer fear of GMO presence or losses caused where contamination is confirmed though restricted to a single regional farmer are pure economic losses and thus unrecoverable. There are no financial limits to liability though contributory negligence and the defendant's financial state may result in a reduced award. A guarantee/security to cover GMO damage is compulsory. No compensation funds exist. The claimant must mitigate his losses. Injunctive relief is available. Defective products are also actionable under the regime. *Lex specialis* provisions are exclusive so that they prevail over general provisions. The regime is comparable to other schemes. 140

(b) General liability or other compensation schemes

141 The general liability provision for illicit acts assumes an illicit act/omission, damage and fault/negligence. Causation must be established. Alternative causality is handled under proportionate or joint and several liability. The latter applies in respect of cumulative causality or multiple independent causes. The possibility of recourse against contributing tortfeasors lies at the judge's discretion. Damages and injunctions may be sought against unreasonable conduct by residents of neighbouring property. Liability for defective products may exist under the Product Liability Act and the Environmental Protection Law.

(c) Sampling and testing

142 There are no specific rules that cover costs associated with sampling and testing for GMO presence. The claimant bears the costs which are recoverable if tests prove positive.

(d) Cross border issues

143 There are no special jurisdictional or conflict of law rules in force. The provisions of the Lugano Treaty on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters apply. For non-contracting states, private international law provisions grant Swiss courts jurisdiction if the defendant is domiciled or habitually resident in Switzerland. The law of the country whose courts have jurisdiction applies where the parties agree. If the parties are resident in the same country, the laws of that country apply otherwise, the law of the country where the wrongful act was committed or where the damage arose applies.

27. United Kingdom: England & Wales

(a) Special liability or compensation regime

144 In England, a public consultation proposing a statutory redress scheme in respect of economic damage resulting from adventitious GMO presence is underway. Other GMO liability claims may be brought under existing legal principles. No specific civil liability or other compensation regimes are in force. For a claim to succeed, the claimant must demonstrate GMO presence in excess of 0.9% through no fault of his own. Economic losses relating to regulatory as opposed to market requirements are compensable. It is not a fault-based or strict liability scheme. Establishment of the GMO source is unnecessary thus multiple causes are of no consequence. The scheme applies exclusively to crop production. As actual GMO presence is required, losses resulting from consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer are not compensable. In essence, the difference in value between the GM and traditional/organic crop represents the compensation ceiling. Funding from the government or

non-GM farmers is unlikely. It is expected that redress is to be sought through an adjudication/arbitration procedure. Injunctive relief is not available. Unless contractually stipulated, recourse to defaulting farmers is unlikely. It bears no exact correlation to other existing schemes.

(b) General liability or other compensation schemes

145 Claims under general tort law include negligence, private and public nuisance and the rule in *Rylands v Fletcher.* For negligence, duty of care, breach of duty and causation must be established. The first two conditions will likely pose difficulty for GMO claims. General defences apply e.g. contributory negligence. Though doubtful in the case of GMO presence, public nuisance may give rise to a civil action where the claimant suffers *special damage*. Unreasonable interference with the claimant's use or enjoyment of land is actionable under private nuisance. The defendant will not be exonerated even if he takes all reasonable steps to ease the effects of such interference. Damage need not be established. An injunction may also be sought. The rule in *Rylands v Fletcher* imposes strict liability where a person uses his land in an extraordinary/unusual way to collect/keep anything likely to do mischief if it escapes. Success under this head is doubtful in the case of GMO admixture. Damage caused must be suffered outside as opposed to on the land. Defences include contributory negligence, *vis major* and act of God. An action may exist under the Consumer Protection Act 1987.

146 To establish causation, the claimant must show that but for the tortious act, damage would not have occurred. Damage must have been reasonably foreseeable. For multiple causes the defendant is liable to the extent of his contribution, if assessable. To establish fault, the reasonable person standard applies. Statutory requirements/authorisations may disaffirm fault.

147 Unlike public/private nuisance actions, physical injury to persons/property must be established under negligence. Losses as a consequence of consumer fear of GMO presence or losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer are likely unrecoverable under negligence or the rule in *Rylands v Fletcher*. The position under public/private nuisance is tentative. Damage is calculated as the difference between the market value of an unaffected and contaminated crop. The award of pure economic loss is restricted in the case of negligence though more easily recoverable under public/private nuisance. There are no financial limits to liability, no duty to obtain liability insurance/advance cover and no general compensation schemes are applicable here. The claimant must mitigate his losses.

(c) Sampling and testing

148 There are no special rules regulating testing/sampling costs. Although uncertain, these may however be recoverable under the proposed redress scheme. Under general tort law, only if GMO traces exist will such costs be recoverable.

(d) Cross border issues

149 No special jurisdictional or conflict of law rules are in force/planned. The Brussels Convention applies in respect of jurisdiction. If the defendant is not domiciled in a participating state, applicable jurisdiction is based on the proper service of a claim form on the defendant in the jurisdiction or abroad (where damage was sustained in the jurisdiction or results from an act committed within the jurisdiction). Generally, the law of the country in which the tort occurred applies.

QUESTIONNAIRE

I. Objective of the study

1. Summary

The introduction of genetically modified organisms (GMOs) in EU agriculture may have economic implications that result from incomplete segregation of GM and traditional crop production. In particular, the presence of GMOs can not be ruled out in non-GM agricultural products. Due to requirements for labelling of GMOs and other purity criteria of non-GM products as well as market demand for non-GMO products, such presence – and even reasonable fear thereof already – may have negative economic implications for the operators concerned. The present study is aimed at analyzing aspects concerning the liability of GMO presence in traditional agricultural products.

2. Background

The cultivation of genetically modified (GM) crops in the EU may lead to cases in which traditional agricultural products contain detectable traces of GMOs. On the one hand, such admixture may result from *inadequate application of segregation measures* by farmers. On the other hand, as agriculture is an open process that does not allow the complete isolation of individual fields, a *certain degree of admixture between neighbouring crops is unavoidable* in practice.

The presence of GMOs in traditional products *may lead to their devaluation*, which would entail an *economic damage to the producer* of the traditional products. For instance, due to the presence of the GMO the traditional product may be required to be labelled as GM.

GMOs and products containing or produced from GMOs have to be labelled according to Community legislation, in particular Directive 2001/18/EC, Regulation (EC) No. 1829/2003, and Regulation (EC) No. 1830/2003. For the case of adventitious or technically unavoidable presence of GMOs in non-GM products, Regulation 1829/2003 provides for a threshold of 0.9% below which such presence in food or feed does not require labelling. For seeds, Directive 2001/18/EC provides for the possibility of adopting thresholds, below which the adventitious or technically unavoidable presence of GM seeds does not

require the labelling of conventional seed lots. Such thresholds have not yet been adopted.

The presence of GMOs above the labelling threshold in a product also triggers the need for traceability of GM products according to Regulation 1830/2003, which may cause additional costs for the operators concerned.

In the EU, crops may only be commercially cultivated after having been authorized for the purpose of cultivation under Community legislation (i.e. Directive 2001/18 or Regulation 1829/2003). The labelling thresholds only apply for the presence of authorized GMOs. *Products containing detectable traces of unau thorized events can not be legally marketed in the EU*.

According to part B of Directive 2001/18, an individual Member State may grant authorization for a non-commercial release of a GMO, for instance for the purpose of experimental field testing. As a result of such experimental cultivation, GMOs not authorized under part C of Directive 2001/18 or under Regulation 1829/2003 may be present in traditional crops. *This presence could cause economic damage as food and feed can not be marketed if it contains detectable traces of such GMOs*.

The admixture of GMOs may also have *specific implications for organic prod ucts*. Regulation (EEC) No. 2092/91 on organic production of agricultural products specifies that GMOs may not be used in organic production, with the exception of certain veterinary products. Therefore, products that require labelling as GM could not be used in organic farming. This implies that GMO presence in organic input materials (such as seed or feed) could have implications beyond the necessity of labelling alone.

Further economic implications may result for farmers producing non-GM crops if specific requirements concerning GMO presence, which go beyond the provisions in Community legislation, are laid down in *contracts with the retailers* or other operators further down the food or feed production chain. Such conditions may also apply for products produced under quality schemes.

In addition to the economic implications resulting from the actual presence of a GMO in a traditional product, costs may also occur due to *sampling and test ing of products*, either on a basis of routine controls or in cases, where relevant GMO admixture may be suspected. In many cases, the presence of GMOs and their quantity can not be assessed without the use of *laboratory analyses*, which may cause *significant costs*.

Furthermore, economic implications for traditional producers that may relate to the presence of GM crop production in a *region*, and which could enlarge the risk of GMO admixture, can not be ruled out. For instance, food or feed producers may *preferentially purchase crops from certain regions*, where no GM crop production may take place.

If the cultivation of GM crops becomes more widespread, the *issue of liability in relation to GMO admixture* could gain further importance in the EU. Compared to other cases of economic damage resulting from neighbouring activity, GMO admixture may pose specific difficulties because the admixture *may initially remain undetected* and become known at later stages of the food or feed production chain. Furthermore, the *causal link* between the damage and the operator responsible for it may not always be apparent as there may be different sources of admixture (e.g., seed impurities, out-crossing with neighbouring crops, volunteers from previous GM crop cultivation).

Liability in the case of economic damage that may result from the presence of GMOs in other crops is a case of civil law. Generally, civil law is in the responsibility of the Member States. In Recommendation 2003/556/EC on guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming, the Commission states that:

> "The type of instruments [to achieve co-existence] adopted may have an impact on the application of national liability rules in the event of economic damage resulting from admixture. Member States are advised to examine their civil liability laws to find out whether the existing national laws offer sufficient and equal possibilities in this regard. Farmers, seed suppliers and other operators should be fully informed about the liability criteria that apply in their country in the case of damage caused by admixture.
>
> In this context, Member States may want to explore the feasibility and usefulness of adapting existing insurance schemes, or setting up new schemes."

Member States may develop national or regional approaches to ensure the co-existence of GM crops with conventional or organic agriculture. According to Article 26a of Directive 2001/18:

> "Member States may take appropriate measures to avoid the unintended presence of GMOs in other products."

In the context of national or regional co-existence legislation Member States may also adopt specific provisions for liability in cases of GMO admixture, and develop compensation schemes, such as insurance systems or compensation funds.

Liability has to be seen in the context of measures to segregate GM crop production from traditional non-GM production in order to achieve co-existence between these different forms of agriculture. The approach taken by the Member States to allocate the responsibility for developing and implementing these segregation measures among the operators concerned has significant implications on liability.

II. Questions

I. Special Liability or Compensation Regimes

1. Introduction

Is there any **special liability or other compensation regime** already in force or at least under discussion in your country which specifically addresses or otherwise applies to liability for GMOs (though not necessarily exclusively), and does it also cover the risks described in the introduction to this questionnaire, i.e. economic damage resulting from actual or feared GMO presence in non-GM crops? If so, please explain this system in as much detail as possible (or – in the case of more than one applicable system – all these systems and to what extent these overlap), focusing in particular on the following aspects, to the extent these are addressed by your country's legislation:

2. Causation

(a) Which criteria apply with respect to the **establishment of the causal link** between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

(b) How is the **burden of proof** distributed? Is there a reversed burden of proof, in the sense that the damage is presumed to be the consequence of the presence of a certain GM crop? How are the different sources of adventitious presence of GMOs (e.g. seed impurities, out-crossing with neighbouring crops, volunteers, transport, storage) being taken into account, if at all?

(c) How are problems of **multiple causes** handled by the regime? Does it include special rules on alternative, potential or uncertain causation? Is liability channelled to a particular person, and if so, how? Is joint and several or other collective liability foreseen, and under which conditions? Are there any specific rules for **recourse** between those liable?

3. Type of regime

Is the liability regime (if it is one) **fault-based, strict or absolute**?

(a) If fault-based, what are the parameters for determining fault, and how is the burden of proof distributed?

(b) If strict, is there still a set of **defences** available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, contributory negligence etc.)?

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

(e) Is the liability regime **exclusive**, or does it overlap or coincide with any other specific or general liability regime in your country? In particular, can claims based on general tort law still be brought either simultaneously or subsequently?

4. Damage and remedies

(a) How is **damage defined and measured** under the system(s) you described? In what way is pure economic loss handled differently to other types of losses, if at all?

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

(c) Where does the scheme draw the line between compensable and non-compensable losses? Are, for example, the losses of farmers in a region covered where the crops of only one of them have been contaminated, but where consumers fear that the entire region is affected?

(d) What are the criteria for **determining the amount of compensation**? For instance: Is the value of the whole product covered or only the depreciation? How is depreciation calculated, based on standards laid down in legislation or, for instance, in private contractual agreements? Are indirect costs, such as increased overhead costs due to the need to find a new market for products, or to regain a certain producer status, taken into account?

(e) Is there a **financial limit** to liability?

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as **compulsory** liability **insurance**), and/or are farmers required to take out first-party insurance which would cover such losses?

(g) Which **procedures** apply to obtain redress?

(h) Do these systems also include possibilities to obtain **injunctive relief**, either before or after admixture has happened?

5. Compensation funds

If you have not addressed this earlier, are there any **compensation funds** already set up or planned in your country, whether public or private or a combination of both, that would provide for at least some compensation of losses of

the kind covered by this study? If so, please describe them in detail, thereby focusing in particular on the following aspects:

(a) How are these funds **financed** (e.g. in the form of a levy on sown or harvested GM crops, or a levy on the sale of GM seeds, or a levy on fees to organic certification bodies)? Which operator groups are the main contributors to the fund (e.g. GM crop growers, traditional farmers, seed importers or developers, biotech industry)?

(b) Is there any contribution granted by the national or regional authorities?

(c) Is the contribution to the fund **mandatory or voluntary**?

(d) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

(e) How are the funds **operated**? Which body is in charge of managing the fund and of deciding about justified claims? Which procedures apply to obtain compensation of loss?

(f) Are there any provisions for **recourse** against those responsible for the actual cause of the loss?

6. Comparison to other specific liability or compensation regimes

To what extent is the specific liability or compensation regime that you have described comparable to other such schemes in your country, e.g. to product or environmental liability? Does it fit into a more broader system, or is it rather to be regarded as exceptional?

II. General Liability or other Compensation Schemes

1. Introduction

If there is no specific liability or other compensation regime applicable in your country (thereby disregarding for the time being possible future systems that you may already have described above), or if such specific regimes do not (entirely) exclude the applicability of other (in particular more general) regimes, please describe how the **general liability rules** (would) apply to cases of economic damage resulting from GMO presence in traditional crops. Please focus in particular on the following aspects which correspond to the catalogue already listed for the special regimes:

2. Causation

(a) Which criteria apply with respect to the establishment of the **causal link** between the alleged damage and the presence of the GM crop concerned?

(b) How is the **burden of proof** distributed? Is there a possibility for a reversal of the burden of proof, in the sense that the damage under certain conditions may be presumed to be the consequence of the presence of a certain GM crop, e.g. if it is established that the GMO farmer failed to apply proper segregation measures?

(c) How are problems of **multiple causes** handled by the general regime? Does it include special rules on alternative, potential or uncertain causation? Is liability channelled to a particular person, and if so, how? Is joint and several or other collective liability foreseen, and under which conditions?

3. Standard of liability

(a) In the case of **fault-based** liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

(b) To the extent a general **strict** liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

(c) Does your jurisdiction provide for special rules applicable to cases of **nuisance** or similar neighbourhood problems? Would these rules apply to cases of the kind covered by this study?

4. Damage and remedies

(a) How is **damage defined and measured**? In what way is pure economic loss handled differently to other types of losses, if at all?

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

(c) Where does your legal system draw the line between compensable and non-compensable losses? Are, for example, the losses of farmers in a region covered where the crops of only one of them have been contaminated, but where consumers fear that the entire region is affected?

(d) What are the criteria for **determining the amount of compensation** in general, and how would this apply to the kind of cases covered by this study? For instance: Would the value of the whole product be covered or only the depreciation? How is depreciation calculated, based on standards laid down in legislation or, for instance, in private contractual agreements?

(e) Is there a **financial limit** to liability, or is there any rule to **mitigate damages** once liability is established?

(f) Are operators under any general or specific **duty to obtain** liability **insurance** or to provide for other advance cover for potential liability?

(g) Which **procedures** apply to obtain redress in such cases?

(h) Are there any **general compensation schemes** that may be applicable in such cases, and how do they operate?

III. Sampling and Testing Costs

1. Are there any specific rules in your jurisdiction which cover **costs associated with sampling and testing for GMO presence** in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply (and if so, who would have to bear these costs)?

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

IV. Cross-border Issues

1. Are there any **special jurisdictional** or **conflict of laws rules** in force or planned in your jurisdiction which apply to harm of the kind described in the introduction to this questionnaire, or are there any other specific provisions aimed at resolving cross-border cases?

2. If there are no such specific rules, how would the **general rules of jurisdiction and choice of law** apply to cases of such kind in your country?

Country Reports

Economic Loss Caused by GMOs in Austria

Monika Hinteregger/Elke Joeinig

I. Special liability or compensation regimes

1. Introduction

The 2004 Amendment of the Gene Technology Act[1] (*Gentechnikgesetz* – GTG[2]) introduced specific rules governing liability problems caused by the co-existence of GMO-free farms and farms using GMOs. The provisions (§ 79k to § 79m), according to the rules of the General Civil Code[3] on neighbourhood liability (§§ 364, 364a ABGB),[4] provide for injunctive relief and a damage claim.[5] 1

§ 79k par. 1 GTG entitles the owner of an agriculturally used land, or the holder of a property or tenancy right, to an injunction against immissions from neighbouring land, provided that the neighbour cultivates products in the sense of § 54 par. 1 GTG and is obliged to registration according to § 101c par. 2 GTG. Products in the sense of § 54 par. 1 GTG are products that consist of GMOs or contain GMOs.

The injunction covers contamination by GMOs from agriculturally used land (e.g. airborne pollen from genetically modified plants[6]) either caused directly by sowing or planting or by indirect effects during the growth phase, harvest or even later. The term "neighbour" is interpreted extensively[7] and, ac-

[1] *Bundesgesetzblatt* (BGBl) I 2004/126.
[2] BGBl 1994/510 as amended by BGBl I 2006/13.
[3] *Allgemeines bürgerliches Gesetzbuch* (General Civil Code, ABGB) *Justizgesetzsammlung* (JGS) 1811/946 as amended by BGBl I 2006/113.
[4] §§ 364 par. 2 and 364a were inserted into the ABGB by *Reichsgesetzblatt* (RGBl) 1916/69, after the model of § 906 of the German Civil Code (BGB) and § 26 of the old German Industrial Act.
[5] See *Bernert*, Haftung für den "Genmais", *Juristische Ausbildung und Praxis* (JAP) 2004/2005, 119 123, 187 190; *Kerschner*, Neue Gentechnikhaftung in der Landwirtschaft (§§ 79k 79m GTG), *Recht der Umwelt* (RdU) 2005, 112 117; *Kerschner*, in: *Kerschner et al* (eds.), Kommentar zum Gentechnikgesetz (2007) §§ 79k 79m. See also *Kerschner/Wagner*, Koexistenz zwischen Gentechnik, Landwirtschaft und Natur Rechtliche Rahmenbedingungen (2003).
[6] *Erläuternde Bemerkungen zur Regierungsvorlage* (EB RV) 617 XXII. *Gesetzgebungsperiode* (GP) 12.
[7] EB RV 617 XXII. GP 12.

cording to the common understanding of § 364 par. 2,[8] it is not necessary that the interfering and affected estates be contiguous.

The interference is only actionable if it meets two further requirements. It must exceed a certain tolerance threshold and it must cause a substantial impairment of the use of the affected farmland. The required tolerance threshold is defined as "the level customary under local conditions". As GM-production has no substantial tradition in Austria, by now, all interference must be considered as unusual. With regard to the second requirement, the substantial impairment of the use of the land, it is, according to § 79 par. 1, sufficient that the owner, due to the interference, cannot place the produce on the market, either at all, or in the way he intended to. Thus, an organic farmer is entitled to an injunction if his products, due to the interference, no longer meet the applicable threshold values for organic farming. The same applies to non-organic farmers who do not wish to use GMOs.[9]

According to § 79k par. 2 GTG, the neighbour who causes an interference in the sense of par. 1 is also liable for the harm caused by the interference to the other landowner or holder of a property right. In order to give rise to a damage claim the interference must again exceed the level customary under local conditions and must cause a substantial impairment of the use of the farmland. The damage claim is regardless of fault. It covers damage to persons and property, including loss of profits. If the damage to property constitutes a significant impairment to the environment, the damage claim also covers the costs of measures of reinstatement as provided by § 79b GTG.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

2 Causality is a necessary prerequisite for liability. In principle, the burden of establishing the causal link between the damage and the tortious act is with the plaintiff. In general the causal link is established if the plaintiff can show, to the satisfaction of the court (a very high level of probability: close to certainty), that the defendant caused the injury. The following evidence is admissible in civil proceedings: documents, witnesses, experts, visual inspection by the court and interrogation of the parties.[10] The costs of providing evidence constitute legal costs that, in general, must be borne by the losing party.[11]

[8] See *Oberster Gerichtshof* (Supreme Court, OGH) 7.10.1981, 1 Ob 31/81, *Entscheidungen des österreichischen Obersten Gerichtshofes in Zivil- und Justizverwaltungssachen* (SZ) 54/137; 20.12.1988, 2 Ob 656/87, *Juristische Blätter* (JBl) 1989, 239; 16.1.1991, 1 Ob 39/90, JBl 1991, 580; 3.10.1996, 1 Ob 2170/96s, SZ 69/220; 29.4.1997, 1 Ob 2337/96z, SZ 70/85; 2.8.2005, 1 Ob 117/05w, RdU 2006/36. *Koziol/Welser*, Grundriss des Bürgerlichen Rechts I (13th ed. 2006) 283.

[9] EB RV 617 XXII. GP 12.

[10] *Rechberger/Simotta*, Zivilprozessrecht (6th ed. 2003) no. 616.

[11] *Rechberger/Simotta* (supra fn. 10) no. 298.

(b) How is the burden of proof distributed?

In general, the burden of proof for all requirements of the damage claim lies with the injured person. For damage caused by GMOs, however, § 79k par. 4 GTG provides for a presumption of causation. If the owner of the affected land can plausibly show that, under the particular circumstances of the case, a certain act or omission of the neighbour was prone to cause the interference in the sense of par. 1, it is presumed that the interference was caused by the act or omission. The presumption is rebutted if the neighbour can show that it is probable that the interference was not caused by his act or omission. In this case the burden of proof lies with the injured landowner. 3

(c) How are problems of multiple causes handled by the regime?

If several neighbours have caused an interference in the sense of § 79k par. 1 GTG, each neighbour is only liable for his proportion of the damage caused to the landowner. If the proportions cannot be determined, all neighbours are jointly and severally liable. The GTG does not provide for a specific rule for recourse between the liable persons. Therefore the rule of the general tort law, § 896 General Civil Code, has to be applied. According to this rule, the tortfeasor who compensated the damage has a right of recourse against the other tortfeasors. 4

In cases of alternative, cumulative and overtaking (intervening) causation the provisions of the general tort law have to be applied. In the case of alternative or cumulative causation all actors are jointly and severally liable. In the case of overtaking (intervening) causation, courts are usually of the opinion that the person who caused the damage first is wholly liable.[12] An exception is only made in personal injury cases where the action of the tortfeasor caused the outbreak of a disease that the victim would have developed later, due to his/her personal disposition. The defendant would thus only be liable for the loss until the point in time in which the victim would have contracted the disease anyway.[13] Several authors[14], however, suggest considering the liability of the first tortfeasor with due regard to the action of the second one in all cases of intervening causation. The result may be a total or partial exculpation of the first injurer, or, under certain conditions, joint and several liability.

[12] See OGH 8.4.1959, 2 Ob 166, 167, *Evidenzblatt der Rechtsmittelentscheidungen* (EvBl) 1959/244; 19.10.1966, 2 Ob 216/66, SZ 39/172; 15.12.1992, 1 Ob 642/92, JBl 1993, 663.

[13] OGH 9.5.1973, 1 Ob 65/73, JBl 1974, 318; 14.9.1977, 8 Ob 116/77, *Zeitschrift für Verkehrsrecht* (ZVR) 1978/165; 3.9.1996, 10 Ob 2350/96t, SZ 69/199; 5.5.1998, 4 Ob 23/98f, JBl 1999, 246.

[14] See *Koziol*, Österreichisches Haftpflichtrecht I (3rd ed. 1997) no. 3/58 ff.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

5 –

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

6 §§ 79k – 79m GTG do not explicitly provide for any defences available to the tortfeasor.

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

7 –

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

8 No, the criteria do not differ.

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country? In particular, can claims based on general tort law still be brought either simultaneously or subsequently?

9 According to § 79k par. 5 GTG, the provisions of the General Civil Code and of other rules governing the prohibition of interference and compensation of damage remain unaffected. Plaintiffs can therefore, simultaneously or subsequently, bring claims based on general tort law. Plaintiffs who do not use their land agriculturally are, however, not entitled to rely on § 79k GTG, but have to invoke the law of the neighbourhood of the General Civil Code (§§ 364, 364a ABGB).

Several *Bundesländer* enacted their own Genetic Engineering Precautionary Measures Acts. Some of them also contain liability provisions (see e.g. § 8 par. 1 of the Genetic Engineering Precautionary Measures Act of Salzburg,[15] which provides for a damage claim in the case of an illegal release of GMOs).

[15] Salzburg *Landesgesetzblatt* (LGBl) 2004/75.

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described? In what way is pure economic loss handled differently to other types of losses, if at all?

Liability under § 79k par. 2 GTG covers damage to persons and property, including lost profit. The injured landowner may, for instance, claim the loss of profits which he suffers because he has to destroy the crop or because he obtains a lower price for the crop.[16] If the damage to property presents a significant impairment to the environment, the injured person, according to § 79b GTG, is entitled to remediation costs, even if these costs exceed the market value of the impaired good. The plaintiff may also ask for advance payment, but has to refund the amount exceeding the market value of the impaired good, if he does not restore the damaged good to its original condition within a reasonable amount of time. (Impairment of the environment that cannot be qualified as damage to the plaintiff's property does not entitle the latter to damages.) 10

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

An action according to § 79k GTG (injunction and damage claim) requires an actual interference in the sense of § 79k par. 1 GTG. 11

(c) Where does the scheme draw the line between compensable and non compensable losses?

As mentioned above, the damage claim according to § 79k par. 2 GTG requires an actual interference by products consisting of, or containing, genetically modified organisms, that exceeds the level customary under local conditions and causes a substantial impairment to the enjoyment of the land. 12

(d) What are the criteria for determining the amount of compensation?

If the plaintiff can no longer place his product on the market, the compensation amount covers the value of the whole product. The depreciation is compensated, in cases where the plaintiff can place the product on the market albeit not in the intended way, e.g. if an organic farmer, due to the contamination, can no longer meet the applicable organic farming standards. 13

There is yet no case law concerning the application of § 79k GTG. Thus it is difficult to tell what sort of damage is covered by this liability regime. According to the explanatory documents to § 79k GTG, the plaintiff is entitled to full reparation including compensation of lost profits.[17] Damage assessment

[16] EB RV 617 XXII. GP 13.
[17] EB RV 617 XXII. GP 13.

is made according to the subjective situation of the plaintiff which means that sales decline, sales difficulties and the above-mentioned indirect costs should be covered.

(e) Is there a financial limit to liability?

14 No, there is no financial limit.

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

15 §§ 79k – 79m do not provide for any obligation to provide for financial security. Such obligation is only provided in § 79j GTG for operators in the sense of § 79a GTG.

(g) Which procedures apply to obtain redress?

16 Before filing an action, the plaintiff has to bring the matter before a conciliation body for an amicable settlement, or to submit an application according to § 433 par. 1 Code of Civil Procedure[18] ("Praetorian" Settlement) or, if the neighbour agrees, to submit the dispute to a mediator (§ 79m par. 1 GTG). Filing an action is only admissible if an amicable settlement cannot be reached within three months from the beginning of the conciliation process, or the arrival of the application at court or the beginning of the mediation scheme. Only conciliation bodies established by the Chambers of Agriculture, the Associations of Lawyers or Notaries and other public corporations can constitute conciliation bodies in the sense of § 79m par. 1 GTG. Mediators must fulfil the requirements of the Act on Mediation.[19] In the absence of a contractual agreement, the costs of the conciliation scheme have to be borne by the neighbour who triggered the amicable settlement. If no amicable settlement is reached and an action is filed, these costs constitute legal costs. When filing the action the plaintiff has to include a certificate of the conciliation body, the court or the mediator, confirming that no amicable settlement was reached.

Damage claims up to € 10.000 must be brought before the District Court (*Bezirksgericht*). All the other claims must be brought before the Regional Court (*Landesgericht*).[20]

[18] *Zivilprozessordnung* (Code of Civil Procedure, ZPO) RGBl 1895/113 as amended by BGBl I 2006/7.

[19] BGBl I 2003/29.

[20] §§ 49, 50 *Jurisdiktionsnorm* (Jurisdiction Standard, JN).

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

Yes. For further details see no. 1. In the case of concrete danger, the injunction can also be brought preventively.[21] Even in this case the obligation to undergo the settlement procedure according to § 79m GTG must be taken into account. It could also be admissible to apply for a temporary injunction.[22] 17

5. Compensation funds

No, there are no compensation funds already set up or planned in Austria. 18

In this context it must be mentioned that damage caused by GMOs is usually not covered by third-party insurance.[23]

6. Comparison to other specific liability or compensation regimes

§§ 79k – 79m GTG draw upon several liability regimes. They were designed after the law of the neighbourhood in the General Civil Code (§§ 364, 364a ABGB)[24] which provides for an injunction against immissions and a damage claim, if the harmful activity is covered by a licence. The definition of compensable damage is based on § 79a GTG and § 11 Nuclear Liability Act (*Atomhaftungsgesetz* 1999, AtomHG). 19

Pursuant to § 364 par. 2 ABGB, the owner of land is entitled to restrain his neighbour from affecting his property with wastewater, smoke, gas, heat, smells, noises, vibrations and similar interferences, in so far as these effects exceed the level customary under local conditions (the tolerance threshold). The interference must lead to a substantial impairment of the enjoyment of land, which itself is defined by what is customary under local conditions, considering the actual level of pollution in the immediate vicinity of the affected land.[25] Finally, the interference must be attributable to human behaviour. Natural occurrences and interferences of a purely aesthetic nature are not actionable.[26] The plaintiff must have an interest in the property to have legal standing. According to the High Court of Justice (OGH), "interest" includes ownership of

[21] Regarding the claim according to § 364 par. 2 ABGB see *Oberhammer*, in: *Schwimann*, ABGB Praxiskommentar II (3rd ed. 2005) § 364 n. 23; *Koziol/Welser* (supra fn. 8) 286.

[22] See *Kerschner*, RdU 2005, 113.

[23] See Article 7 p. 7 of the model insurance conditions for third party liability insurance 2005 of the Austrian Insurance Association, http://www.vvo.at/haftpflicht allgemein/23.html.

[24] EB RV 617 XXII. GP 11.

[25] See *Spielbüchler*, in: *Rummel*, Kommentar zum Allgemeinen bürgerlichen Gesetzbuch I (3rd ed. 2000) § 364 n. 14; *Oberhammer* (supra fn. 21) § 364 n. 17. For a less factual approach: *[Gimpel-]Hinteregger*, Grundfragen der Umwelthaftung (1994) 278 ff., who suggests solving the conflict of interests by balancing the interest of the polluting party to continue the interfering activity against the interest of the neighbour not to be affected by the interference.

[26] See *Spielbüchler* (supra fn. 25) § 364 n. 9, 11. Against that restriction: *Jabornegg/Strasser*, Nachbarrechtliche Ansprüche als Instrument des Umweltschutzes (1978) 27; *[Gimpel-] Hinteregger* (supra fn. 25) 268.

land, as well as other property rights, including real servitude and leaseholds.[27] It is not necessary that the interfering and affected estates be contiguous.[28] The action can be brought against the person responsible for the interference and/or the owner of the interfering land, provided that the owner has tolerated the interference and is or was in the legal or actual position to prevent it.[29] Thus, it is sufficient that there is a legal relationship between the owner and the polluter (e.g. tenancy), whether or not this relationship actually empowers the owner to prevent the interference.[30]

If the impairment is caused by an activity covered by a licence, the owner of land is not entitled to obtain injunctive relief but he can claim compensation under § 364a ABGB. The claim for damages is regardless of fault. In order to be entitled to sue under this provision, the owner of land has to satisfy the prerequisite conditions for an injunction provided by § 364 par. 2 ABGB. The defendant has the burden of proof to demonstrate that the interference is not beyond the tolerance threshold.[31] § 364a ABGB covers damage to real estate, such as the cost of repairs and other remedial work, diminution of value of property and loss of profits.[32] Contrary to § 79 par. 2 GTG, § 364a ABGB does not allow for loss of life and personal injury.[33] Under certain conditions, the owner of land can rely on § 364a ABGB even if the activity of the neighbour is unlicensed. The High Court of Justice (OGH) applies § 364a analogously to cases where the injured land owner did not have the legal or factual opportunity to prevent the damage by an injunction,[34] or where someone operates a plant or engages in an activity that exposes his/her neighbours to imminent offensive effects.[35] Due to this liberal application of § 364a ABGB by the High Court of Justice, this section has become a general strict liability rule for environmental damage that covers all types of real property damage caused by activities dangerous or offensive to the environment. Such an application of § 364a ABGB, however, has been heavily criticised by some legal scholars.[36]

[27] OGH 20.6.1990, 1 Ob 19/90, JBl 1991, 247; 12.3.1992, 8 Ob 523/92, JBl 1992, 641.

[28] See OGH 7.10.1981, 1 Ob 31/81, SZ 54/137; 20.12.1988, 2 Ob 656/87, JBl 1989, 239; 16.1.1991, 1 Ob 39/90, JBl 1991, 580; 3.10.1996, 1 Ob 2170/96s, SZ 69/220; 29.4.1997, 1 Ob 2337/96z, SZ 70/85. *Koziol/Welser* (supra fn. 8) 283.

[29] OGH 5.3.1986, 1 Ob 9/86, JBl 1986, 719; 11.12.1991, 2 Ob 591/91, JBl 1992, 643.

[30] OGH 14.7.1994, 8 Ob 589/93, RdU 1994/22; *Lux*, Zur Passivlegitimation des Grundstücksei gentümers im Nachbarrecht bei Inbestandgabe des Grundstücks comment to OGH 14.7.1994, 8 Ob 589/93, JBl 1995, 195.

[31] *Oberhammer* (supra fn. 21) § 364 n. 22; OGH 11.10.1995, 3 Ob 508/93, JBl 1996, 446 (*Sandstrahl* decision).

[32] OGH 31.3.1925, Ob III 234/25, SZ 7/115; 1.12.1965, 7 Ob 298/65, JBl 1966, 319; *Spielbüchler* (supra fn. 25) § 364a n. 9; *Oberhammer* (supra fn. 21) § 364a n. 10.

[33] This is being criticised by *[Gimpel-]Hinteregger* (supra fn. 25) 322 ff.

[34] OGH 15.10.1992, 7 Ob 601/92, JBl 1993, 387 (cmt. by *Kerschner*); 17.11.1993, 1 Ob 19/93, RdU 1994/9 (cmt. by *Kerschner*); 19.12.1995, 1 Ob 31/95, RdU 1996/122 (cmt. by *Kerschner*).

[35] OGH 24.10.1990, 1 Ob 21/90, JBl 1991, 110 (detergent manufacturing plant); 16.1.1991, 1 Ob 39/90, JBl 1991, 580 (illegal disposal of industrial waste); 17.11.1993, 1 Ob 19/93, RdU 1994/9 (excessive manuring by a farmer); 26.1.1999, 5 Ob 3/99y, JBl 1999, 520 (wood logging).

[36] *Kerschner*, Kausalitätshaftung im Nachbarrecht? RdU 1998, 10; *Rummel*, comment to OGH 26.1.1999, 5 Ob 3/99y, JBl 1999, 523.

The definition of damage under § 79k par. 2 GTG corresponds to the definition according to § 79a GTG. §§ 79a – 79j GTG provide for a specific strict liability regime covering the risks of the production, use, increase, storage, destruction or disposal of genetically modified organisms, as well as their intentional or unintentional release.[37] If the GMO is not put lawfully into circulation, the operator of the activity is liable for damages for loss of life, personal injury and property damage, as well as economic losses arising from these damages. If the damage to property presents a significant impairment to the environment, the injured person, according to § 79b GTG, is entitled to remediation costs, even if these costs exceed the market value of the impaired good. The plaintiff may also ask for advance payment. Nevertheless, if the injured person does not perform the remediation within a reasonable amount of time, the amount exceeding the market value of the impaired good must be refunded. Impairment of the environment that cannot be qualified as damage to the property does not entitle the landowner to damages. The cause of the damage must lie in the specific properties of the organism, derived from the genetic modification or in the combination of these properties with other dangerous properties of the organism. Liability is unlimited in amount. To ease the burden of proof for the injured party, § 79d GTG establishes a presumption of causality. If an injured person can submit reasonable evidence that the damage might have been caused by a certain genetically modified organism, it will be presumed that the injury was caused by the genetically modified properties of the organism. The defendant may rebut the presumption by proving that it is probable that the damage was not at all, or only partly, caused by the genetically modified properties of the organism. For the rebuttal, it is sufficient to show that the damage probably derived from another cause.

The definition of damage under § 79k par. 2 GTG also corresponds to the definition according to § 11 AtomHG[38]. The operator of a nuclear plant or the carrier of nuclear material is liable to compensate for death or personal injury and loss of or damage to property. § 11 par. 1 AtomHG adds that compensation for property damage shall also include decontamination costs. The person who has suffered the loss or damage is also entitled to claim damages for consequential economic loss. If the damage to property represents a significant impairment to the environment, the injured person is entitled to the costs of measures of reinstatement, even if these costs exceed the market value of the impaired good. The plaintiff may also ask for advance payment. However, any amount forwarded that exceeds the market value of the damaged good must be refunded when restoration is not performed within a reasonable amount of time. An impairment of the environment that is not considered damage to property does not entitle the plaintiff to damages.

[37] See § 4 (4) and § 20 GTG.
[38] BGBl I 1998/170 as amended by BGBl I 2003/33.

II. General liability or other compensation schemes

1. Introduction

20 According to § 1295 ABGB, anyone who has suffered damage is entitled to claim compensation for the damage inflicted upon him by fault, be it by breach of contract or otherwise. The injured person has to prove that the tortfeasor caused the damage and that he was at fault.

For damage claims based on general tort law unlawfulness and fault are required. A conduct is unlawful if it violates a specific legal rule. A GMO-farmer must comply with special rules of conduct and with notification and documentation duties provided by the GTG. The failure to perform these duties is unlawful and can also give rise to a liability for breach of a protective law (*Haftung wegen Schutzgesetzverletzung*). In addition to unlawfulness fault is required. The law differentiates between intent and negligence. According to the prevailing view, in the case of a breach of a protective law a reversal of the burden of proof concerning fault is applied.[39]

Pursuant to §§ 1323, 1324 ABGB, in the case of a slight degree of negligence, the claim for damages covers only the actual damage. Under fault-based liability, loss of profits is only recoverable when the defendant is found to be grossly negligent.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

21 Causality is a necessary prerequisite for liability in tort. In principle, the burden of establishing the causal link between the damage and the tortious act is with the plaintiff. The admission and weighing of the evidence lies within the discretion of the court (free evaluation of evidence). In general the causal link is established if the plaintiff can show, to the satisfaction of the court (a very high level of probability close to certainty), that the defendant caused the injury.

(b) How is the burden of proof distributed?

22 In principle, the burden of establishing the causal link between the damage and the tortious act is with the plaintiff. Under certain conditions, the burden of proof may be eased for the plaintiff. Causality may be established by prima facie evidence, if causation can be inferred against the defendant from a typical course of events. The application of prima facie evidence is especially

[39] *Welser*, Schutzgesetzverletzung, Verschulden und Beweislast, ZVR 1976, 1; *Fucik*, Die (ob jektive) Beweislast, *Richterzeitung* (Rz) 1990, 54; *Koziol/Welser*, Bürgerliches Recht II (13th ed. 2007) 321. OGH 12.12.1996, 2 Ob 2423/96d, ZVR 1998/3; 1.7.1999, 2 Ob 181/97z, ZVR 1999/99.

justified where the defendant has violated a law that was designed to protect persons like the plaintiff from the sort of damage that occurred (protective law, *Schutzgesetz*).[40] The special rules of conduct and the notification and documentation duties provided by the GTG can be considered as protective laws. Therefore, causality may be established by prima facie evidence.

(c) How are problems of multiple causes handled by the general regime?

If several persons have caused a damage and the injured person is not able to apportion the damage among the defendants, he is entitled to claim full damages from any of the defendants (§ 1302 ABGB). The actors are jointly and severally liable. Joint and several liability also applies for joint perpetration (§ 1301 ABGB). 23

However, before a court applies joint and several liability or equal apportionment of damages, it is obliged to try to estimate each defendant's share. Only if such estimation is not possible can joint and several liability (§ 1302 ABGB) be assessed against defendants. According to § 896 ABGB the tortfeasor who has paid compensation has a right of recourse against the other tortfeasors.

For alternative, cumulative and intervening causation see no. 4.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

Fault is established if the actor can be personally blamed for his unlawful conduct. The law differentiates between intent and negligence. The tortfeasor is negligent if he fails to observe the duty of reasonable care. A GMO-farmer must be considered an expert according to § 1299 ABGB. Pursuant to this provision experts must have the typical capacities and skills of their profession. Therefore, an objective standard of fault is applied. In principle, the burden of proof is with the injured person (§ 1296 ABGB). In the case of a breach of a protective law, according to the prevailing view, § 1298 ABGB has to be applied which provides for the reversal of the burden of proof.[41] 24

[40] See *[Gimpel-]Hinteregger*, Umwelthaftung in Österreich, Phi 1996, 202 (204, 207).

[41] *Welser*, ZVR 1976, 1; *Fucik*, RZ 1990, 54; *Koziol/Welser* (supra fn. 39) 321. OGH 12.12.1996, 2 Ob 2423/96d, ZVR 1998/3; 1.7.1999, 2 Ob 181/97z, ZVR 1999/99.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

25 –

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

26 The law of the neighbourhood in the General Civil Code (§§ 364, 364a ABGB) is described above under I.6.

The licence for bringing genetically modified organisms into circulation according to the GTG does not constitute a licence in the sense of § 364a ABGB. According to consistent case law, § 364a ABGB requires that the interests of the neighbours must be taken into account in the permit procedure as is provided for in the permit procedure of §§ 74 ff. of the Industrial Code (GewO).[42] The GTG does not fulfil this requirement. The cultivation of GMO-seeds or GMO-plants that were brought into circulation with a GTG-licence do not require any other licence. Therefore, the neighbour is entitled to obtain injunctive relief according to § 364 par. 2 ABGB. If the interference causes damage the neighbour may claim compensation based on general tort law (§§ 1295 ff. ABGB). § 364a ABGB may only be applied analogously (see no. 19).

4. Damage and remedies

(a) How is damage defined and measured? In what way is pure economic loss handled differently to other types of losses, if at all?

27 Pursuant to §§ 1323, 1324 ABGB, in the case of a slight degree of negligence the claim for damages covers only the actual damage. Loss of profits is only recoverable when the defendant is found to be grossly negligent. However, the distinction between actual damage and loss of profits is difficult. According to court rulings, a profit has to be considered as actual damage if it is highly probable (close to certainty) that the profit would have been gained.[43] Pure economic loss, which is not based on an infringement of an absolutely protected legal interest (personal rights, property etc.), is only recoverable within the scope of contractual liability, in the case of damage infliction *contra bonos mores*, and, in the case of the violation of a protective law, if the violated protective law is designed, *inter alia*, to protect the plaintiff from pure economic loss.[44]

[42] OGH 18.2.1975, 4 Ob 619/74, SZ 48/15; 10.11.1982, 1 Ob 28/82, SZ 55/172; 8.7.2003, 4 Ob 137/03f, RdU 2003/88.

[43] OGH 24.6.1992, 1 Ob 15/92, JBl 1993, 399; 17.10.1995, 1 Ob 20/94, *Österreichisches Bank-Archiv* (ÖBA) 1996, 549; 7.12.1995, 2 Ob 72/94, ecolex 1996, 357; 24.3.1998, 1 Ob 315/97y, ecolex 1998, 392.

[44] *Koziol/Welser* (supra fn. 39) 314.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

The plaintiff has to prove that the defendant caused the damage by an unlawful and culpable action. The loss of a farmer whose customers only fear that his products are no longer GMO-free, would be regarded as pure economic loss and, usually would not constitute compensable damage. 28

(c) Where does your legal system draw the line between compensable and non compensable losses?

As mentioned above, liability based on general tort law requires an unlawful and culpable action that causes the damage. Such losses constitute pure economic loss. 29

(d) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

Damage assessment is made according to the market value of the good at the time of the infliction of damage (§ 1332 ABGB; objective damage assessment). If the defendant is found to be grossly negligent, the loss of profits is also recoverable. Then the plaintiff may claim the difference between his present state of property and the state he would be in without the tortious act (subjective damage assessment according to the balance theory). In this case the plaintiff's subjective circumstances are taken into account.[45] 30

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

No, there is no financial limit to liability. 31

In Austrian tort law, contributory negligence is a very common defence. It is a general tort rule governed by § 1304 ABGB. By direct or by analogous application,[46] § 1304 ABGB covers all types of tortious liability, like intentional and negligent behaviour, trespass, and strict liability. It also includes all types of damage e.g. loss of life and personal injury and it includes compensation for economic loss. If the injured person contributed to the damage by his own fault, the amount of recoverable damage will be reduced. If both parties are at fault, the damage will be apportioned according to the seriousness of their misconduct. Predominant guilt on one side, however, can justify full recovery or total exclusion of recovery of damages.

[45] *Koziol/Welser* (supra fn. 39) 323 ff.

[46] *Ehrenzweig/Mayrhofer*, System des österreichischen allgemeinen Privatrechts II: Schuldrecht Allgemeiner Teil (3rd ed. 1986) 305; *Reischauer*, in: *Rummel*, ABGB II (2nd ed. 1992) § 1304 n. 8; *Koziol* (supra fn. 14) no. 12/26; *Harrer*, in: *Schwimann*, ABGB VI (3rd ed. 2006) § 1304 no. 3.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

32 No, the operators have no legal duty to obtain liability insurance or to provide for other advance cover for potential liability.

(g) Which procedures apply to obtain redress in such cases?

33 Claims for damages up to € 10.000 must be brought before the District Court (*Bezirksgericht*) and all the other claims before the Regional Court (*Landesgericht*).[47]

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

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III. Sampling and testing costs

35 The Austrian Agency for Health and Food Safety (AGES) and the Austrian Federal Office for Food Safety (BAES) are competent for the analysis of seed, feeding stuff and food for the presence of GMOs. The two organisations were founded together and their organisations are closely connected. The AGES and the BAES operate officially in accordance with the Seed Act (*Saatgutgesetz* 1997) and the Feedstuffs Act (*Futtermittelgesetz* 1999).[48] In the course of an admission procedure for seed or feeding stuff the BAES has to sample the seed/feeding stuff. For its activities, there is a scale of charges including charges for GMO testing. The charges have to be borne by the applicant. The BAES also carries out checks of seed and feeding stuff. If, in the course of the checks, an infringement of the Seed Act or the Feedstuffs Act is found, the charges for these checks have to be borne by the accused person (§ 6 par. 6 Austrian Law for Health and Food Safety – GESG[49]). According to § 8 par. 7 GESG, the AGES may also render services to private persons. There is a specific scale of charges, including GMO testing, for the analysis of a private sample. The charges for the analysis have to be borne by the private person. According to § 8 par. 2 sub-par. 6 GESG, the AGES is also competent for the analysis of samples in accordance with the Food and Consumer Protection Act (*Lebensmittelsicherheits und Verbraucherschutzgesetz* – LMSVG[50]). The competent institutes analyse official samples delivered by organs responsible for the inspection of foodstuffs. In the case of an infringement of the Food and Consumer Protection Act, the accused person has to bear the charges for the analysis (§ 71 par. 2 and 3 LMSVG). The AGES may also analyse private samples. The charges

[47] §§ 49, 50 JN.
[48] See www.ages.at.
[49] BGBl I 2002/63 as amended by BGBl I 2007/25.
[50] BGBl I 2006/13 as amended by BGBl I 2007/151.

for the analysis have to be borne by the private person only if the analysis has not given rise to a complaint (§ 71 par. 1 LMSVG).

IV. Cross-border issues

For non-contractual claims for damages because of interferences according to § 79k GTG, the law of the state where the damage occurred has to be applied (§ 79l GTG). 36

For injunctive relief it is the law of the country where the damaged real estate is situated that applies (§ 31 Austrian Private International Law Statute – IPRG[51]). Therefore, Austrian Law has to be applied if the damaged real estate lies in Austria. 37

For a claim for damages based on general tort law, § 48 IPRG has to be applied until the Rome II Regulation enters into force. Pursuant to this provision, the law of the state where the conduct that caused the damage was carried out has to be applied. 38

[51] BGBl 1978/304 as amended by BGBl I 2004/58.

Economic Loss Caused by GMOs in Belgium

Bernard Dubuisson/Grégoire Gathem

I. Special liability or compensation regimes

Preliminary notice: Given the fact that the questions relate principally to extra-contractual civil liability, we will not analyze the solutions ordered by contractual liability regimes, namely the relations between vendors, purchasers and possibly, under-purchasers. 1

Belgian law does not provide for any specific liability regime dedicated to the dissemination of GMOs. 2

In expectation of the implementation of the European Directive 2004/35, which however does not apply to physical injuries, damage to property or economic losses, neither does Belgian law provide for a general liability regime for damage to the environment[1] or any general strict liability regime resting on the created risk. However, it is worth noting that a Royal decree was adopted on 3 August 2007 (Mon. Belge, 20/09/2007) concerning the prevention and remedying of environmental damage caused by the placing of GMOs or products containing GMOs on the market. This Royal decree is supposed to partially implement European Directive 2004/35. Since the Directive and the Royal decree only relate to the liability for environmental damage after the placing on the market of GMOs and not to the damage resulting from coexistence of GM crops with non-GM crops, we will not examine this text. Further acts (national or regional) are expected to comply with the Directive. 3

On the other hand, some texts implementing European directives regulate the use of GMOs and could, for this reason, influence the liability for the economic losses resulting from the presence of GMOs in non-GM crops. 4

[1] *J.-F. Neuray*, Droit de l'environnement (2001) 663, 698. The Agreement of Lugano of 8 March 1993 is not in force in Belgium. On this topic, see *N. De Sadeleer*, La convention du Conseil de l'Europe sur la responsabilité civile des dommages résultant de l'exercice d'activités dange reuses pour l'environnement, *Revue Générale des Assurances et des Responsabilités* (RGAR) 1994, no. 12367.

5 The first is the Royal decree of 21 February 2005 regulating the voluntary dissemination in the environment as well as the marketing of genetically modified organisms or products thereof, which came into force on 24 February 2005. This regulation aims at preventively protecting human health and the environment when one proceeds to the voluntary dissemination or marketing of GMOs. It is worth noting that this text subjects voluntary dissemination to the government's preliminary authorization and obliges the owners correlatively to respect the specific conditions defined in this authorization[2]. Furthermore, it defines the procedures for granting and withdrawing this authorization, as well as the entities responsible for enforcing the regulation. Breach of this regulation is subject to criminal and administrative sanctions.

6 In the field of civil liability, this text will facilitate the proof of a fault by specifying the conditions for the dissemination and marketing of GMOs. As we will see, a violation of these conditions will constitute a fault within the meaning of the Civil Code (see no. 21). Moreover, art. 13 of the decree provides that the request for authorization ("the notification") must include the following statement of civil liability: "I the undersigned X, the notifying person, state to undertake the full civil liability for any damage to human or animal health, to goods and the environment, which would result from the projected experimentation". This text does not purport to create an obligation of insurance nor a new derogatory liability regime that would be based on the risk[3]. To the contrary, it seems to be a provision which invalidates any clause permitting the exclusion or the limitation of compensation for the damage resulting from the experimentation of GMOs.

7 Other texts are likely to apply, in a direct or indirect way, to the cultivation of GMOs and could consequently affect the determination of the civil liability related to GMOs. We do nothing but mention them:

- EC Regulation 178/2002 of 28 January 2002 aims at protecting human health and consumers, on the one hand, and ensures the correct operation of the Internal Market with regard to foodstuffs on the other hand. Notwithstanding the heading of its chapter 2, this Regulation does not contain in itself any provision directly concerning civil liability[4].
- EC Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage has not yet been implemented in Belgian law. The Directive limits its scope to ecological damage. It does not apply to physical injuries, damage to private property,

[2] Article 1er, § 1er: "[…] Conformément au principe de précaution, le présent arrêté vise à protéger la santé humaine et l'environnement: lorsque l'on procède à la dissémination volontaire d'organismes génétiquement modifiés dans l'environnement à toute autre fin que la mise sur le marché; lorsque l'on place, sur le marché à l'intérieur de la Communauté, des organismes génétiquement modifiés en tant que produits ou éléments de produits […]".

[3] A law would be required to create such a liability regime.

[4] See *X. Vermandele*, Quelle responsabilité pour les exploitants du secteur agroalimentaire?, in: La sécurité alimentaire et la réglementation des OGM (2005) 99 ff.

or economic losses and does not affect the rights resulting from these categories of damage (14th recital).

- The law of 24 January 1977 relating to the protection of consumers' health with regard to foodstuffs and other products, as well as its implementing decrees. This law contains accompanying administrative measures and criminal sanctions, the latter potentially involving the criminal liability of a legal entity (Penal Code, art. 41bis).
- The Safety of Products and Services Law of 9 February 1994 which does not apply however to foodstuffs.
- The law of 20 January 1999 aiming at the protection of the marine environment in marine spaces under the jurisdiction of Belgium (art. 11, § 4): "The voluntary introduction of indigenous or not, genetically modified organisms, in marine spaces, is prohibited". The author of a damage or a disturbance which affects the marine environment is required to make reparation even if he was not at fault (art. 37, § 1st). It is sufficient that the disturbance results from an accident or an infringement. The goal of this legislation is less to compensate economic losses than to safeguard the specific character, the biodiversity and the integrity of the marine environment.
- The Belgian Rural Code whose art. 35 and 36 respectively impose a distance for plantation and lay down the right of the neighbour to require the pulling up of the plants being at a less distance, subject to the abuse of rights.

There is no specific compensation scheme covering the losses resulting from the presence of GMOs in traditional crop. However, as regions have limited competency to regulate the economic aspects of the coexistence, they might regulate this matter. In this respect, discussions are going on within both the Flemish (i.e. in the drafting phase[5]) and the Walloon Parliaments (i.e. waiting for Parliamentary assent)[6]. The draft legislation seeks to create a fund aimed at compensating economic damage in the absence of an identifiable tortfeasor. Significantly, the Walloon draft decree on the coexistence of genetically modified crops, conventional crops and organic crops is currently being examined in its fourth reading at the Walloon Parliament. This text has not yet entered into force, but according to our information, it could be adopted in April or May 2008. The proposed decree sets out the legal framework for the cultivation of genetically modified plants in the Walloon region. The main objective is to permit the coexistence of genetically modified crops and conventional and organic crops in the long term, and at the same time to establish a system of compensation for losses which may be suffered in the event of adventitious mixing. It provides for prior authorization before the commencement of GMP cultivation, and for the obligation to notify the neighbouring producers. It also defines the concept of "financial losses" associated with the admixture and lays down the principle of possible compensation for these losses through a fund which could be supplied by levies on GMP producers, agricultural entities which are authorized to work with these crops and businesses which are

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[5] Infra 665 ff.
[6] Infra 668 ff.

authorized to transport harvested GMP. This text does not modify the general liability rules. One can already note that the Walloon project set forth an obligation for the farmers, but also for agricultural enterprises and seed sellers to contribute to the fund in proportion to the risk they generate.

II. General liability or other compensation schemes

1. Introduction

9 In the absence of specific rules, the general rules of the Belgian Civil Code will govern the liability for damage resulting from the presence of GMOs in traditional crops. One must distinguish between the liability based on personal fault (art. 1382: "Any act whatever of man which causes damage to another, obliges him by whose fault it occurred, to make reparation" and art. 1383 of the Civil Code: "Each one is liable for the damage which he causes not only by his own act but also by his negligence or imprudence") and the liability for damage caused by things which one has in his keeping ("*garde*") (art. 1384, sub. 1st: "One is liable not only for the damage which he caused by his own act but also for that which is caused by the act of persons for whom he is responsible, or by things which he has in his keeping"). The right to compensation thus only requires that the plaintiff shows evidence that his damage is both recoverable and in causal link with a fault (art. 1382) or with the defect ("*vice*") of a thing (art. 1384).

10 In addition to these bicentennial rules, which are at the base of a primarily Praetorian Civil liability regime, one also has to mention the Belgian Product Liability law of 25 February 1991, itself issued by European Directive 85/374/EEC of 25 July 1985. This law makes the producer liable for damage caused by the defect in his product. Nevertheless, given the conditions set forth by this law, in particular concerning the notion of defect, the recoverable damage and the notion of "product put into circulation", it is not likely that a farmer will succeed on this basis for the economic damage resulting from the presence of GMOs in traditional crops (see infra).

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

11 Belgian courts use the theory known as the "equivalence of conditions" ("*équivalence des conditions*"). According to this theory, the fault is causally linked with the damage if the plaintiff can prove that the damage would not have occurred as it did if the faulty act had not been committed[7]. The faulty act of the

[7] *Cour de Cassation* (Cass.), 15. 3. 1995, *Larcier Cass*., 1995, no. 355; Cass. 26. 5. 1990, *Pasicrisie* (Pas.) 1990, I, 1126; Cass. 15. 5. 1990, Pas. 1990, I, 1054. *J. De Codt*, L'appréciation de la causalité dans le jugement des actions publiques et civiles, in: Actualités de droit pénal et de procédure pénale (2001) 40, no. 3.

GMO farmer should not necessarily constitute an immediate or direct cause of the economic damage[8]. Indeed, all the faulty events in link of condition *sine qua non* ("necessary condition") with the damage are in causal link with the damage, whatever their gravity and whatever the degree of distance with the damage[9].

12 However, in the event of very "indirect" or "remote" causality, a Belgian judge will be allowed to dismiss the claim due to the lack of certainty of the causal link[10]. One must recognize that this criterion leads to some degree of uncertainty regarding claims for economic losses caused by the presence of GMOs, since this kind of damage is sometimes at a very distant stage in the chain of causality. The decision will probably be less uncertain in the event of a criminal offence (and thus intentional), since it is sometimes allowed that these wrongdoers absorb a preliminary negligence[11].

13 Some courts could be tempted to adapt the application of this theory in such a way that the causal link should require the damage to be "the normal consequence of the fault" (theory known as of "*causalité adéquate*")[12]. Such tendency is perceptible in the jurisprudence although it remains the minority. Under this theory, a judge could dismiss a claim for compensation for a too distant economic damage from the initial fault. Nevertheless, it is not certain that such a decision would not be broken by the Belgian Supreme Court ("*la Cour de cassation*") although the Supreme Court never formally rejected the theory of adequate causality.

(b) How is the burden of proof distributed?

14 It falls on the plaintiff to prove the causal link between the fault and the damage (art. 1315 of the Civil Code) and this causal link must be certain[13]. Article 1382 does not create a presumption of causality and proof simply that the farmer did not respect legal or administrative prescriptions is not sufficient to establish the causal link between this failure and the damage. Concretely, the farmer-victim will thus have to demonstrate that without the faulty use of GMOs or the failure to apply proper segregation measures, his economic damage would not have occurred such as it occurred *in concreto*.

[8] Cass. 28. 5. 1991, Pas. 1991, I, 943; Cass. 6. 1. 1976, Pas. 1976, 515.

[9] *I. Durant*, A propos de ce lien qui unit la faute au dommage, in: Droit de la responsabilité (2004) 16.

[10] *J. De Codt* (supra fn. 7) 47, no. 11; *D. Philippe*, La théorie de la relativité aquilienne, in: Mélan ges à R. O. Dalcq (1994) 486; *R.-O. Dalcq*, Traité, Les Novelles, T. V, vol. 2, 130, no. 2441.

[11] *J. De Codt* (supra fn. 7) 47, no. 11; *F. Glansdorff*, Encore à propos de la causalité: le concours entre la faute intentionnelle de l'auteur du dommage et la faute involontaire de la victime, *Revue critique de jurisprudence belge* (RCJB) 2004, 272 290.

[12] Cass. 11. 10. 1989, RGAR 1992, no. 12.007, cmt. by *F. Glansdorff*; *Cour d'appel de Bruxelles*, 24. 2. 1989, RGAR 1990, no. 11618, cmt. by *F. Glansdorff*; *J. De Codt* (supra fn. 7) 59, no. 24.

[13] See recently, among others, Cass. 1. 4. 2004, *Journal des Tribunaux* (JT) 2005, 357; *Rechtskundig Weekblad* (RW) 2004 05, 92; *Revue Générale de Droit Civil Belge* (RGDC) 2005, 368; Cass. 12. 10. 2005, RG. P050262F, at http://www.cass.be.

15 A scientific certainty would not necessarily be required. The courts could use a set of serious, precise and concordant presumptions to decide that the link of causality is established with the required certainty. The certainty must be judicial; in practice, a very high degree of likelihood should be considered sufficient by the judge[14].

(c) How are problems of multiple causes handled by the general regime?

16 If the action is based on art. 1382 of the Civil Code, each fault in causal link with the damage involves the liability of its author. There is no channelling or absorption of liability on/by one of the tortfeasors[15]. Each one whose fault constitutes a *sine qua non* condition of the same damage, will have to indemnify the victim to the full extent, provided that the damage is indivisible (a liability known as "*in solidum*") but the latter shall not be allowed to cumulate compensation for the same loss. Once the responsible has fully indemnified the victim, he will have recourse (a "contributory" claim) against the other tortfeasors. The contributory share of each of them, if any, will be fixed by the judge according to the gravity[16] of the respective faults or their causal capacity[17].

17 If the damage suffered by the farmer is caused both by a fault and a situation of *force majeure* (for example, an Act of God such as a tornado or a flood), the liability of the tortfeasor shall not be reduced. A *force majeure* would exonerate him only if it constituted the exclusive cause of the damage. If the plaintiff himself was negligent in causal link with his damage, the liability of the tortfeasor may be reduced or disallowed. However, if the tortfeasor committed an intentional fault, he will not be entitled to invoke the reduction towards the victim[18].

18 The claim for compensation based on the defect ("vice") of a thing (art. 1384 of the Civil Code) can be undertaken only against the keeper of a thing ("*gar dien d'une chose*"), defined by the Belgian Supreme Court as the person who "for his own account, made use of the thing or enjoyed it with a capacity of direction and monitoring"[19]. A splitting of responsibility will be decided if the damage was caused at the same time from a vice of a thing (for example, of a field) and from the fault of the victim. The *force majeure* will not exonerate the liability of the keeper of the defective thing, except when it constitutes the exclusive cause of the damage.

19 Finally, unlike the general civil rules, the Belgian Product Liability Act of 25 February 1991 "channels" ("*canalise*") the liability on the "producer" and con-

[14] *I. Durant* (supra fn. 9) 27.
[15] Except in the event of an intentional act. See surpa no. 14.
[16] Cass. 29. 11. 1995, *Larcier Cass*. 1995, no. 1319; Cass. 8. 10. 1992, Pas. 1992 I, 1124.
[17] Cass. 7. 11. 1990, Pas. 1991, I, 249; Cass. 29. 1. 1988, Pas. 1988, I, 627.
[18] Cass. 6. 11. 2002, *Jurisprudence de Liège, Mons et Bruxelles* (JLMB) 2003, 808, JT 2003, 579; *Bulletin des assurances* (Bull. Ass.) 2003, 815, RW 2002 2003, 1629.
[19] *J.-L. Fagnart,* La responsabilité civile: Chronique de jurisprudence 1985 1995, in: Les Dos siers du JT no. 11 (1997) 78.

sequently offers the plaintiff a defined list of interlocutors[20]. Therefore, the manufacturer of seeds or one who put his name or his trademark on them could be considered as a producer within the meaning of the law, but not the mere farmer, at least as long as his crops are attached to the ground, since the law only applies to products put into circulation. However, in accordance with art. 10 of the law, the producer's liability will be limited if it proves the fault of the victim or the fault of a third party. In situations where several producers are held liable for the same damage, they shall be liable jointly and severally pursuant to art. 9 ("*responsabilité solidaire*"), without prejudice to their rights of contributions.

3. Standard of Liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

Except in the event of physical harm, the mere fact of causing damage (such as the presence of GMOs) does not in itself constitute a fault within the meaning of art. 1382. The victim must prove the elements of the fault. 20

According to well-established jurisprudence, the mere transgression of a legal or administrative provision, if it imposes a determined behaviour on the concerned person in a precise way, constitutes in itself a fault, provided that this fault is committed freely and consciously[21]. The fault of a farmer could thus result from the mere breach of a precise provision of the Royal decree of 21 February 2005: a voluntary dissemination of GMOs without the authorization of the authority or non-compliance with the conditions of cultivation set forth in the administrative authorization in so far as they are precise enough. Moreover, particular attention must be given to the texts mentioned supra no. 7. It results from them that in Belgian tort law, the proof of the fault will be facilitated by the adoption of written rules imposing precise standards for the cultivation of GMOs rather than obligations of means. 21

Besides the violation of a precise legal regulation by the farmer, a fault in the sense of art. 1382 could also result from the violation of a general duty of care evaluated in the light of the *bonus pater familias*. The victim will then have to convince the judge that the defendant's behaviour is a type of conduct that a normal and careful farmer would not have adopted under the same cir- 22

[20] See, on this topic, *G. Gathem*, La garantie des biens de consommation dans son environnement légal: la sécurité des produits et la responsabilité du fait des produits, in: La nouvelle garantie des biens de consommation et son environnement légal (2005) 198.

[21] Cass. 3. 10. 1994, JT 1995, 26 (Breach of the "Règlement Général pour la protection du Tra vail"); Cass. 22. 2. 1989, Pas. 1989, I, 631 (Breach of the "Code de la route") and, in the field of government liability, Cass. 13. 5. 1982, JT 1982, 772, with concl. of the *procureur général Velu*, RCJB 1984, obs. *R.-O. Dalcq*. See also *B. Dubuisson*, Faute, illégalité et erreur d'interprétation en droit de la responsabilité civile, RCJB 2001, 28 72; *L. Cornelis*, Principes du droit belge de la responsabilité extra contractuelle, vol. I (1991) 65, no. 40.

cumstances, while avoiding an appreciation *ex post*. It is the same reasoning that the Belgian judge will hold in the case of an infringement of a provision imposing an obligation of means such as art. 20 of the Royal decree of 21 February 2005 (obligation to take all adequate or necessary measures to protect health or to respect such measures).

23 Nevertheless, even in the event of a transgression of a written and precise standard, the author of the fault will be entitled to avoid liability by establishing the existence of a cause for justification ("*cause de justification*") such as the "invincible error" ("*erreur invincible*") or the "state of need" ("*l'état de nécessité*"). One must note in this regard, that a licence to cultivate GMOs would not exempt its holder from his duty of care nor from his duty to comply with the legal and administrative rules, as well as from his duty not to inflict on others a disorder that exceeds the extent of the normal disadvantages of the vicinity (on the theory of the disorders of vicinities, see infra no. 30)[22].

24 Lastly, one has to point out that Belgian tort law does not recognize the theory of "aquilienne relativity" ("*relativité aquilienne*") which would make it possible to deprive a victim of the benefit of the compensation according to the object and the finality of the infringed rule[23]. Thus, the fact that a rule aims at protecting human health and the environment rather than property should normally not prevent the victim from bringing a suit, except if this element is an explicit condition of the fault. For example, the duty to take necessary measures to protect human health and the environment (art. 20 of the Royal decree of 21 January 2005).

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

25 The Belgian Product Liability Act of 25 February 1991 does not require the victim to demonstrate the fault of the producer. It is sufficient for him to establish that his damage was caused by the defect of a product. According to art. 5, a product is defective when it does not provide the safety which one is legitimately entitled to expect, taking all circumstances into account, including the presentation of the product, the normal or reasonably foreseeable use of the product, and the time when the product was put into circulation.

26 However, one must note that the interest of this law seems to be rather limited with regards to compensation for economic losses due to the presence of GMOs in traditional crops for the following reasons:

[22] Cass. 27. 4. 1962, Pas. 1962, I, 938; Cass. 27. 11. 1974, Pas. 1975, I, 341.
[23] *D. Philippe*, La théorie de la relativité aquilienne, in: Mélanges à R. O. Dalcq (1994) 467 486.

- The notion of product: although, since 4 December 2000, agricultural products fall under the scope of the law, even if they did not undergo any industrial processing, the law still requires that the product must be put into circulation (art. 8.a). This requirement entails the exclusion of cultivations and crops that are not yet marketed[24]. On the other hand, the law could apply to the marketed seeds that contain GMOs. The law would then apply independently of the existence of a contract of sale. Moreover, a field might not be regarded as a "product" since the law does not apply to immovables. To the contrary, the notion of product encompasses movables which are installed in immovables[25].
- The notion of defect: the notion of defect exclusively focuses on safety. The defect shall thus be determined by reference to the expectations of the public at large regarding the safety and health of consumers and property, but not to the fitness of the product for use. The issue will be to convince the judge that, under the particular circumstances of the given case, the presence of GMOs constitutes a defect within this meaning[26].
- Limitations relating to the damage set forth in art. 11 (see infra 4.a).
- Many causes of exemption from liability: the producer can avoid liability if it establishes that the product was neither manufactured for the sale or any other form of distribution for economic purposes, nor manufactured or distributed by him in the course of his business (art. 8.c). The simple fact that the cultivation of GMOs is simply experimental should thus preclude applying the Product Liability law.
- In the same way, the producer will not be held liable if he proves that at the time he put the product into circulation, the state of scientific and technical knowledge was not such as to enable the existence of the defect to be discovered (art. 8.e). The evaluation of this cause of exemption will thus depend on the tools available (and accessible to the producer) to detect the presence of GMOs at this time.
- In addition to these causes of exemption, the producer can try to limit his liability by showing that the negligence of the victim or that of a third party contributed to the occurrence of the whole or part of the damage (art. 10).

Article 1384 subparagraph 1 of the Civil Code creates a presumption of li- 27
ability against the keeper of a thing ("*le gardien d'une chose*"). The keeper will be liable as soon as a damage is caused by the vice of a thing which he has to guard, independently of the origin of the vice and in particular, whether he committed a fault or not. According to the Belgian Supreme Court, the vice of a thing consists of "an abnormal characteristic which renders it, in certain circumstances, likely to cause damage"[27].

[24] See, *G. Gathem* (supra fn. 20) 214.
[25] *G. Gathem* (supra fn. 20) 192 193.
[26] *Exposé des motifs*, Ch. sess. ord., 1261/1, 1989 90, 12; *G. Gathem* (supra fn. 20) 208.
[27] For instance, Cass. 1. 12. 1994, JT 1995, 340, *Droit de la circulation. Jurisprudence* (Dr. circ.) 1995, 169; Cass. 9. 3. 1989, JT 1989, 732.

28 Let us imagine the case where the presence of GMOs in a traditional crop belonging to A is due to the cultivation of GMOs in a bordering field under the guard of B which was transported by the wind or by water. A should establish that the presence of GMOs in the field of B constitutes an abnormal characteristic of this field. However, if a genetically modified cereal field (an immovable) can constitute a thing within the meaning of art. 1384 subparagraph 1 of the Code[28], it would not automatically render the field as having been affected by a vice for only this reason, and especially when the dissemination of GMOs was authorized and this was carried out in compliance with the lawful conditions. More generally, there will be no vice if the presence of GMOs in B's field is regarded as being "normal"[29].

29 Paradoxically, it is probable that the courts would imply the existence of a vice from the accidental presence of a genetically modified stock on a field without genetically modified cereal. The fact that the keeper ignores the presence of GMOs, or could not have known of them, is not relevant[30]. Article 1384 subparagraph 1st could thus make the keeper of a field or a river liable whereas they would not be at the origin of the vice and would not know of the existence of it. However, the keeper will be entitled to avoid liability by invoking an exonerating cause (an Act of God or the fault of a third party) provided that it is the exclusive cause of the damage.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

30 Belgian courts regularly apply the theory of the disorders of vicinity in cases of environmentally harmful acts (the "*théorie des troubles de voisinage*" based on art. 544 of the Civil Code). The interest of this specific liability regime for our purposes is that it does not require the existence of fault. The issue of a licence to cultivate GMOs, even if regular and definitive, will not prevent the introduction of a claim based on the theory of the disorders of vicinity[31].

31 The basic rule can be stated as follows: "Whoever caused the disorder of vicinity by a fact, an omission or whatever behaviour is obliged to compensate for the damage"[32], provided that it results from it an excessive disorder i.e. a burden which exceeds the extent of the ordinary disadvantages of the vicinity[33].

[28] Art. 1384 al. 1 also applies to immovables, *H. Vanderberghe/M. Van Quickenborne/L. Wynant,* Overzicht van rechtspraak: aansprakelijkheid uit onrechtmatige daad (1985 1993), *Tijdschrift voor Privaatrecht* (TPR) 1995, 1290, no. 65.

[29] In the same sense, concerning a field dedicated to the deposit of wastes: Civ. Liège, 15. 4. 1994, *Aménagement Environnement* (Am. Env.) 1996, 237.

[30] Cass. 29. 10. 1987, Pas. 1987, I, 254; Cass. 21. 3. 1979, Pas. 1979, I, 844; Cass. 9. 11. 1979, Pas. 1980, I 320.

[31] See namely Civ. Anvers, 25. 6. 1981, Pas. 1982, III, 66 and *J.-F. Neuray* (supra fn. 1) 694; Gand, 11. 10. 1990, *Tijdschrift voor Gentse rechtspraak* (TGR) 1990, 121; *J. Hansenne*, Les biens, Précis vol. II (1996) 826.

[32] Cass. 7. 12. 1992, JT 1993, 473, obs. *D. Van Gerven*.

[33] *N. Verheyden-Jeanmart/P. Coppens/C. Mostin,* Examen de jurisprudence: les biens (1989 1998), RCJB 2000, 308.

This theory requires a connection between the fields, not necessarily a relation of immediate vicinity, but in a relation of close vicinity[34]. 32

The rural or industrial character of an area is likely to influence the appreciation of the disorder[35]. One indeed has to expect that a judge will be more reluctant to accept the complaint when the applicant acts in an industrial area or a well-known area for its activities of cultivation of GMOs. It might even be decided that those who settle near a culture of GMOs should bear the risk, by voluntarily deciding to undergo the whole or part of the damage of which they complain of and that it would be their fault. This is called the theory of "*pre occupation*", the application of which remains, however, a minority[36]. Courts sometimes refer to the evolution of the normal requirements of the life in society and might decide that the contamination by GMOs belongs to the ordinary disadvantages of the life in society or in certain rural or industrial parts of the territory. In addition, one can suppose that the Belgian courts will be more favourable to actions based on requirements relating to health or the safeguarding of a healthy environment, by calling upon art. 23 of the Constitution if necessary, rather than favourable to matters based on commercial reasons[37]. 33

Unlike art. 1382 which provides for a reparation of the damage to full extent, the theory of the disorders of vicinities only allows the plaintiff to obtain "a fair and proper compensation for the broken balance" corresponding to the part of damage which exceeds the limit of the normal disadvantages[38]. 34

On this basis, the farmer could claim the limitation of a close culture, if necessary under penalty, unless this measure is at the origin of a new imbalance[39]. Considering this, the Belgian Supreme Court seems to limit compensation in kind ("*in natura*") when the disorder was caused by a non-faulty fact (for example, a culture in the compliance with the rules). The Supreme Court refuses to order the complete prohibition of the fact and this, even if "absolute prohibition is the only manner of restoring the broken balance"[40]. The judge could then prescribe particular protection measures or the grant of an allowance[41]. 35

[34] For instance, Bruxelles, 15. 5. 1963, JT 1963, 695 or Civ. Gand, 8. 5. 1997, RGDC 1988, 577.

[35] See *R.-O. Dalcq/G. Schamps*, Examen de jurisprudence (1987 1993). La responsabilité délic tuelle et quasi délictuelle, RCJB1995, 573 586; *N. Verheyden-Jeanmart/P. Coppens/C. Mostin* (supra fn. 33) 328.

[36] Civ. Anvers, 22. 11. 1993, RW 1995 96, 160; Liège, 19. 3. 1993, *Revue régionale de droit* (RRD) 1993, 393; J.P. Gand, 11. 8. 1997, TGR 1998, 14; *J.-F. Neuray* (supra fn. 1) 689 citing Aix, 17. 2. 1966, *Recueil Dalloz* (D) 1966, 281, obs. *F. Derrida*.

[37] *J.-F. Neuray* (supra fn. 1) 695.

[38] Cass. 6. 4. 1960, RGAR 1960, 6557, note *R.-O. Dalcq*, RCJB 1960, 257, note *J. Dabin*. For instance, Mons, 16. 6. 1987, Pas. 1987, II, 198. *N. Verheyden-Jeanmart/P. Coppens/C. Mostin* (supra fn. 33) 346.

[39] *N. Verheyden-Jeanmart/P. Coppens/C. Mostin* (supra fn. 33) 347.

[40] Cass. 14. 12. 1995, *Bulletin des arrêts de la Cour de cassation* (Bull) 1995, 1163 and JLMB 1996, 966, obs. *P. Henry*.

[41] *N. Verheyden-Jeanmart/P. Coppens/C. Mostin* (supra fn. 33) 352.

4. Damage and remedies

(a) How is damage defined and measured?

36 No statutory definition of recoverable damage is given under art. 1382 and 1383 of the Belgian Civil Code. The violation of a subjective right is not required but the plaintiff will have to establish that a stable and legitimate interest has been violated[42]. It is generally accepted that the damage exists as soon as the victim establishes a negative difference between his patrimonial or moral situation created by the presence of GMOs and his patrimonial or moral hypothetical situation without the presence of GMOs. The damage will result from this comparison[43].

37 Among the elements of the recoverable damage, Belgian legal scholars and jurisprudence traditionally distinguish between "damage to property" and "damage to persons", the latter being the consequence of a physical injury or a death. One also opposes "material damage" which covers the patrimonial consequences of these attacks and the "moral damage" which is the kind of damage consequent to an infringement of extra-patrimonial interests of the victim. According to most authors, there is a "pure economic damage" when the deprivation of financial advantages occurs independent of death or personal injury or damage to a tangible object[44].

38 As regards recovery, the general rules do not operate any distinction between these different subdivisions of the damage: there is no exclusionary rule within the framework of art. 1382 to 1384. In theory, the economic losses resulting from the presence of GMOs are thus recoverable to full extent, like the other kinds of damage, if they satisfy three requirements: the damage has to be (1) certain, (2) personal and (3) not already indemnified[45]. Nevertheless, because of the more "abstract" and "indirect" or "remote" character of pure economic loss relating to the presence of GMOs, the proof of the different conditions of the liability will be more complicated, in particular concerning:

- The "certainty" of the damage. It will be difficult for a farmer to establish that he would certainly have earned a higher income in the absence of GMOs in his crop. However, in some cases, the loss of an opportunity ("*la perte d'une chance*") will be recoverable when it appears that this opportunity was certain or at least reasonable but not merely hypothetical[46]. Nevertheless, as we will see, the recent jurisprudence of the Supreme

[42] *J.-L. Fagnart*, L'évaluation et la réparation du préjudice corporel en droit commun, RGAR 1994, no. 12248; *R.-O. Dalcq/G. Schamps* (supra fn. 35) 738.
[43] *R.-O. Dalcq*, Traité de la responsabilité civile, vol. II: le lien de causalité, le dommage et sa réparation (1962) 338.
[44] *J.-L. Fagnart*, Recherches sur le droit de la réparation, in: Mélanges à R. O. Dalcq (1994) 147. See also *W. van Boom,* A comparative perspective, in: *W. van Boom/H. Koziol/Ch. Witting* (eds.), Pure Economic Loss (2004) 3.
[45] As the Supreme Court reminds us: for instance, Cass. 13. 4. 1995, JT 1995, 649.
[46] *J.-L. Fagnart* (supra fn. 44) 24.

Court tends to limit the application of this theory to certain situations (see infra no. 45 ff.).

- The "foreseeability" of the damage. Some decisions consider that the foreseeability of the damage is a condition of fault when it consists of a lack of prudence or precaution[47]. Therefore, the defendant could avoid the consequences of his negligence provided that a judge considers that he could not reasonably have predicted the emergence of the damage.
- The fault of the victim. The full compensation for the economic damage will be reduced when the damage is also caused by the victim's fault. The latter will have to bear the fraction of losses resulting from his own negligence. For instance, when the plaintiff himself did not comply with rules on cultivation or did not take the precautions which a normally careful farmer would have taken (for example, to isolate his field from the other) and whose fault is in causal link with his economic losses.
- Good faith. The victim must act in good faith and could thus have to take reasonable steps to mitigate his losses[48] (see infra no. 53–54).
- The "certainty" of the causal link. Courts and scholars unanimously consider that reasonable limits should be set to the extent to which remote economic effects of a tort should be made compensable. Under Belgian tort law, compensation has thus to be refused when the link of causality between damage and the initial fault is not sufficient any more[49]. Let us note that, as regards contractual liability, economic damage must be a direct continuation of the contractual breach to be recoverable under art. 1151 of the Civil Code.
- No duplication of compensation for the same loss[50]. One could probably argue before the Belgian courts that the compensation must stop where other elements start absorbing the damage (for example, when the raising of prices makes it possible to reflect or "internalise" the additional costs resulting from GMOs or the payment of unemployment benefits).

Unlike the Civil Code, the Belgian Product Liability law limits the recoverable damages. According to art. 11, damage caused to the person is fully covered (§.1), but damage caused to property is only recoverable if it is in regard to assets which are of a type normally used or consumed for private reasons, and if they have been used by the injured party mainly for private reasons. Moreover, the damage caused to the product itself is never indemnified (§.2)[51]. Therefore, when the economic losses resulting from the presence of GMOs are a consequence of an attack to crops cultivated with a professional aim (for example: 39

[47] See *R.-O. Dalcq*, La prévisibilité du dommage est elle une condition nécessaire de la faute?, in: Hommage à J. Heenen (1994) 83 ff.; *L. Cornelis*, Le sort imprévisible du dommage prévisible, cmt. on Cass. 11. 4. 1986, RCJB 1990, 79.

[48] *B. Hanotiau*, Régime juridique et portée de l'obligation de modérer le dommage dans le droit de la responsabilité civile contractuelle et extracontractuelle, RGAR 1987, no. 11.289.

[49] *I. Durant* (supra fn. 9) 11 ff.

[50] Cass. 3. 5. 1988, Pas. 1988, I, 1061, JT 1989, 112.

[51] *P. Henry/J.-T. Debry*, La responsabilité du fait des produits: derniers développements, in: Droit de la responsabilité: morceaux choisis, CUP, vol. 68 (2004) 183.

corn fields intended for commercial sale), this damage will not be recoverable on the basis of this law. It is undeniable that this exclusionary rule considerably limits the practical utility of the law for our purpose[52]. In the same way, with regard to economic loss independent of harm to the crop owned by the victim, it should be considered, in the absence of similar existing case law in Belgium, that recovery should not be granted on the basis of this law because of the professional character of the economic losses and its finality which is the safety of persons and property[53].

40 In theory, the economic losses resulting from the presence of GMOs could be compensated *in natura* (for example: the prescription of measures intended to put an end to the harmful state) provided that the plaintiff requires it, that it is possible and that it does not constitute an abuse of rights[54].

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

41 These losses will be recoverable on the basis of art. 1382 only if the farmer proves that they are certain and that they result from a fault. It is likely that jurisdictions will be more reluctant to grant compensation for economic losses resulting from the fear of the consumers than for the losses resulting from the concrete and actual admixture. Indeed, the more remote the damage is from the act generating liability, the more its certain character will be tenuous and this makes it hypothetical.

42 Then, the plaintiff will have to introduce evidence that his economic loss related to the fear of consumers, due to a faulty act of a nearby farmer and that this fault is in causal link with the fear of consumers and also with the economic loss which results from it. And yet, the mere cultivation of GMOs does not constitute a fault in itself, subject to authorization, even if this cultivation generates fears.

43 Furthermore, it will have to be established that without the culture of GMOs in the vicinity, consumers would not have had this fear. Recovery will not be allowed when the lowering incomes due to the fear of consumers would have appeared without the GMO cultivation in the vicinity.

44 Finally, it is worth noting that this kind of economic loss could have been generated by a fault of the authorities or the media. The following cases could occur:

[52] On this topic, see *G. Gathem* (supra fn. 20) 205 206 and the quoted authors.

[53] See *G. Gathem* (supra fn. 20) 206; *B. Dubuisson*, Libres propos sur la faute aquilienne, in: Mélanges offerts à M. Fontaine (2003) 159; *M. Faure/W. Vanbuggenhout*, Produktenaanspra kelijkheid. De Europese richtlijn: harmonisatie en consumentenbescherming, RW 1987 88, 12, no. 25.

[54] Cass. 21. 4. 1994, *Arresten van het Hof van Cassatie* (Arr. Cass.) 1994, 392; Cass. 20. 1. 1993, Pas. 1993, I, 67, JLMB 1993, 635.

- Under special circumstances, the grant of an authorization could deviate from the behaviour of a normally careful administration – for instance, a breach of the precautionary principle ("*principe de précaution*") – and then constitute a fault in the sense of art. 1382 of the Civil Code.
- An administration that has not set forth the proper conditions to limit the risks of contamination might be deemed negligent.
- The administration should be held liable when it has generated this fear by a non-suitable information campaign.
- Etc.

(c) Where does your legal system draw the line between compensable and non compensable losses?

In theory, all the economic losses of the farmers of an area, and even of a third country, shall be fully indemnified under Belgian tort law since it is certain that they result from a faulty act of a third party and that they are causally linked with this faulty act[55]. The certainty of damage as well as causal link must be based on convincing elements leading to a real certainty, which can however rise from a very high and not contradicted probability[56]. 45

Nevertheless, some of these losses will present so high a degree of distance in comparison with a quite localised faulty contamination that the judge will refuse to compensate them. For these cases, the borderline will then be drawn by the application of the normal requirements of the fault-based liability (see supra no. 36 ff.). Therefore, compensation shall not be allowed when the judge notes that the certainty of the causal link or the certainty of the damage does not exist any more. The point will then be that it will be more difficult for the farmer who is geographically far away from the faulty cultivation to prove the certainty of the causal link between his economic losses and the faulty contamination of this culture than for the immediate neighbour. 46

A farmer might thus not be able to establish the causal link with sufficient certainty between a fault of a nearby farmer and his lowering incomes. In this case, the plaintiff can try to demonstrate that the faulty cultivation made him lose a real opportunity to earn an amount of income (to be determined) and claim recovery for the loss of this opportunity. To the contrary, the damage resulting from his loss is not recoverable when the opportunity is only hypothetical. In the absence of precise elements of valuation, the economic value of the lost opportunity will be evaluated *ex æquo and bono*, which cannot be equal to the advantage that this opportunity would have gotten. One has to note that the Supreme Court recently issued limits regarding the application of the theory of the loss of an opportunity by reaffirming that it still requires the causal link to 47

[55] Unlike some non fault based liability regime, such as product liability, which imposes a finan cial ceiling.

[56] *J.-L. Fagnart*, Petite navigation dans les méandres de la causalité, RGAR 2006, 14.080, no. 41.

be certain[57]. Nevertheless, the majority of Belgian authors are of the opinion that the scope of this jurisprudence only concerns the loss of the possibility of avoiding the occurrence of a risk when this risk has already occurred. It should thus not prevent recovery of a certain loss of a hope to make some profit margin or to conclude a worthy sale of cereals[58].

(d) What are the criteria for determining the amount of compensation in general?

48 The common rules on liability do not impose a financial ceiling on compensation. The Supreme Court regularly reminds parties about the principle of full recovery, i.e. the victim has to be compensated for his entire damage. But the full recovery of damage also contains its own limit: the reparation shall not exceed the amount of the damage. Therefore, the plaintiff is not entitled to claim compensation for a damage that has already been indemnified. Moreover, Belgian tort law does not recognize the notion of punitive damages ("*dommages punitifs*").

49 The valuation of the amount of compensation will depend on the preliminary identification of the damage:

- If the presence of GMOs did nothing but generate additional expenses (for example, costs of labelling), only the refunding of these expenses shall be granted.
- If the contaminated crops have been sold, but at a lesser value, only the depreciation shall be compensated.
- In the event of withdrawal and/or destruction of the crop, the expenses generated by these will be compensated by the responsible person.
- If the presence of GMOs prevented the fulfilment of a sale contract for the contaminated products, the loss will consist of the deprivation of the profit expected for the fulfilment of this contract.
- Etc.

50 The evidence of the amount of these losses shall be brought by all means of right subject to a contradictory rule ("*principe du contradictoire*"). It could in particular be based on statistics, the prices on the market, the income of previous years, etc. If necessary, a legal expert can be ordered by the judge in order to valuate these losses after due hearing of the parties. The fees for this expert are in theory to be paid by the succumbing party.

51 If the damage is certain in its existence but there is a lack of an accurate element to valuate its amount, the judge will most likely fix the allowance *ex æquo and bono* by taking account of all the elements likely to exert an influ-

[57] Cass. 1. 4. 2004, JT 2005, 357, RW 2004 05, 92, RGDC 2005, 368; Cass. 12. 10. 2005, RG. P050262F, sur http://www.cass.be.

[58] See, e.g., Civ. Bruges, 27. 9. 1999, RW 2000 01, 951, and the decisions quoted in *I. Durant* (supra fn. 9) 35.

ence on this calculation (for instance, the market price for such cereal at a given moment).

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

Unlike the Civil Code, the law of 25 February 1991 provides for the deduction of a fixed amount of 500 Euros for damage to property in order to avoid litigation in an excessive number of cases. On the other hand, Belgian law does not set a limit on the total liability of the producer for serial damages caused to persons, although the European Directive allows this (art. 16). Limitations of liability can also be provided by contract. 52

No rule formally forces the victim to restrict his damage. Nevertheless, the victim must act in good faith and this requirement could require him to take reasonable steps to mitigate his damage. The victim will bear the aggravation of the damage caused by his own negligence[59]. 53

Therefore, the victim will probably not be entitled to claim compensation for all his losses if he refused to clear part of his contaminated crops where he had the opportunity to do so without further damage being caused. 54

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

The farmers can subscribe to an insurance RC exploitation. 55

(g) Which procedures apply to obtain redress in such cases?

There is no specific procedure. The action must be brought before the competent court and in compliance with the rules of the Code of Civil Procedure ("*Code judiciaire*"). 56

However, it must be stressed that liability normally expires after a length of time. Indeed, the limitation period for proceedings as regards non-contractual civil liability, is "5 years as from the day which follows that where the injured person became aware of the damage or its aggravation and the identity of the liable person" and in any case, 20 years from the date on which the fact generating the damage occurred (art. 2262bis of the Civil Code). As regards defective products, the law of 25 February 1991 provides for a limitation period of 3 years starting from the day on which the plaintiff became aware, or should reasonably have become aware, of the damage, the defect and the identity of the producer. A new art. 2277ter of the Civil Code recently adopted provides for a special limitation period concerning proceedings introduced by public authorities to recover prevention and remediation costs resulting from actions relating to environmental damage. 57

[59] *R.-O. Dalcq/G. Schamps* (supra fn. 35) 737.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

58 No.

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

59 The Royal decree of the 21 January 2005 sets forth duties of monitoring for GMO farmers. The sampling and testing justified by this monitoring will rest on these farmers.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply (and if so, who would have to bear these costs)?

60 If the sampling and testing costs are incurred within the framework of a proceeding, for example a claim for the recovery of economic losses, it is in theory the succumbing party to bear them. In order for the judge to order an expert, it will have to be established that there is a *prima facie* ground for liability.

61 To the contrary, where it is about a proceeding brought before a repressive jurisdiction, for example, when the civil liability results from the responsibility of a penal infringement, the expert fees ordered by the judge will be supported by the State.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

62 See supra no. 60–61.

IV. Cross-border issues

63 Belgian International Private law does not provide for any specific rules.

1. Rules of jurisdiction[60]

64 In the event of the application of the "*Brussels I*" Regulation, the jurisdiction to which the defendant can be assigned, under the terms of art. 5, 3 and 4, is "in the courts of the place where the harmful event occurred or may occur" i.e. the "place where the damage occurred is either the place of the causal event which

[60] *F. Rigaux/M. Fallon*, Droit international privé (3rd ed. 2005) 919 923.

is at the origin of this damage"[61], or "as regards a civil claim for damages or restitution which is based on an act giving rise to criminal proceedings, in the court seized of those proceedings, to the extent that that court has jurisdiction under its own law to entertain civil proceedings". When jurisdiction is based on the place of the occurrence of the damage, only the direct damage, which must be local, must be taken into account. Thus in the case of damage undergone by a Belgian company because of the losses of one of its German subsidiaries consecutive to the presence of GMOs, it is the German subsidiary which is the direct victim as this damage occurred in Germany. The judge will not be competent for other damage located abroad.

As regards cases falling outside the scope of the Brussels I Regulation, the Belgian Code of International Private Law allows the competence of the Belgian courts to take precedence if the act generates liability or the damage occurs in Belgium (art. 96). 65

2. Rules of conflict of laws

The Belgian Code of International Private Law lists points of attachment aiming at indicating the law of the country with the closest links to the situation (art. 99)[62]: 66

- The residence of the parties in the same country at the time of occurrence of the harmful fact.
- For lack of habitual residence in the same country, the law of the country where the whole of the liability's components, namely the act causing liability and the damage occured, but "entirely".
- For the other cases, the law of the country with the closest links to the concerned obligations.

[61] ECJ Case 21/76, 30. 11. 1976, *Bier v. Mines de potasse d'Alsace, ECR* 1976, 1735.
[62] *F. Rigaux/M. Fallon* (supra fn. 60) 923.

Economic Loss Caused by GMOs in Cyprus

Louise Zambartas

I. Special liability or compensation regimes

There is no special GMO regime in Cyprus and the Government has proved unwilling to share its plans. 1

In fact, at the present time GM crops are illegal in Cyprus and this seems likely to remain the case for the foreseeable future. Which, in theory, means the Government does not have to address many of these issues. 2

As to the chance that the neighbouring conventional/organic farmer may get compensation for his economic loss; there is almost no chance at all, given the political situation in Cyprus (discussed further below). In addition, there is a policy of no recovery for economic losses under the Cyprus tort law. In fact there is a rather strong non-compensatory culture in evidence in the courts, generally. 3

There is no alternative form of compensation mechanism under Cyprus law. 4

As no liability regime exists, either exclusive or otherwise, a plaintiff would be forced to reply upon the general law. The only relevant legislation in Cyprus regarding this area of the law is the general law of tort, which is discussed in detail below. 5

The Government has stated that legislation for liability due to admixture of GMOs is being discussed by an ad-hoc group of experts. It is very much at the initial stages of preparation of the specific regulations. 6

II. General liability or other compensation schemes

1. Introduction

The only relevant legislation in Cyprus regarding this area of the law is the Civil Wrongs Law.[1] The legislation is divided as follows: 7

[1] Cap 148, as amended by Law 87 of 1973, Law 54 of 1978, Law 156 of 1985, Law 41 of 1989, Law 73 (1) of 1992, Law 101 (1) of 1996, Law 49 (1) of 1997, Law 29 (I) of 2000 and Law No. 160(I)/2003.

- Part I, Preliminary;
- Part II, Rights and Liabilities of Certain Persons;
- Part III, Civil Wrongs and Defences to Certain Actions Therefore;
- Part IV, Miscellaneous Provisions as to the Recovery of Remedies; and
- Part V, Miscellaneous.

8 Section 29(1)(c) of the Courts of Justice Law of 1960 (Law 14 of 1960) provides that the Common Law and the principles of equity apply in Cyprus, provided that they do not conflict with the Constitution of the Republic or with laws passed by the House of Representatives. In the case of *Peletico Plasters Ltd v George Moaaskalli and Others*,[2] the Supreme: Court, *inter alia*, stated that the Civil Wrongs Law, as amended by Law 156 of 1986 with the Supreme Court's judgments, shows that no exhaustive codification of the law of torts exists since the Cypriot courts apply the English Common Law according to the provision of section 29(1)(c) of the Courts of Justice Law of 1960.

9 Cyprus follows English tort law in many instances, but there is no requirement for the courts to follow English decisions and they do not form binding precedents. The Cypriot courts exercising civil jurisdiction have never attributed a binding effect to the various English judgments; these are only considered to be persuasive since the Cypriot courts over the years have developed their own precedents in this area of the law and, in reaching a decision, the courts consider the facts and circumstances of each case separately.

10 In recent times, there has been a marked move away from English decisions. It is likely that an English precedent allowing recovery for economic loss in the circumstances of interest to us, would not be followed in Cyprus and the culture of non-recovery would prevail.

11 Historically, torts under Cyprus law are divided into two main classes, namely:

- Trespasses; and
- Actions "on the case".

12 A trespass is a direct and forcible injury and actions "on the case" are actions for damage caused otherwise than directly and forcibly. (In the case of GMOs, actions would fall within the second category and clearly it is this category which concerns us here).

13 Nevertheless, remedies now depend on the substance of the right and not on whether they can fit into a particular framework. The interests which the law of torts will protect include physical harm, both to persons and to property; a person's reputation, dignity or liberty; the use and enjoyment of his land; and his financial interests. Whether a particular type of harm will entitle the victim

[2] Civil Appeal 9356, 13. 2. 1998.

to redress varies considerably with the manner in which it occurred. In broad terms, there is a spectrum of conduct ranging from intentional through careless to accidental.

In the Civil Wrongs Law, there is no concrete classification of the offences which exist. Despite this, it can be said that the various offences included in the law are classified as those concerning persons, e.g. battery and those concerning interference with interests in property, e.g. trespass to land. In any society, conflicts of interest are bound to lead to the infliction of losses which increase with the level of social interaction. However, it is only when an interest is recognised at law that it gives rise to a legal right, the violation of which constitutes a "wrong". An accurate definition regarding this area of the law is impossible, bearing in mind the various functions of the law, the different types of torts, and the interests which the law purports to protect. Most of the existing definitions are either too abstract or too cumbersome to be of any practical value. 14

According to section 8 of the Civil Wrongs Law, a person under the age of 18 years may sue and, subject to the provisions of section 9, be sued in respect of a civil wrong, provided that no action shall be brought against any such person in respect of any civil wrong when such wrong arises directly or indirectly out of any contract entered into by such person. 15

Under section 61 of the Civil Wrongs Law, compensation in respect of any civil wrong is recoverable only once. Liability in this area of the law may arise in one of several ways. 16

First, liability may be imposed as a legal consequence of a person's act or omission, if he is under a legal duty to act. Liability may also be imposed as the legal consequence of an act or omission of another person with whom he stands in some special relationship, such as that of master and servant, known as "vicarious liability"[3]. 17

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

An important element of the foundation of an action in tort is the relation between the original activity or omission and the consequences to the plaintiff. The issue of causation is of greater importance where damage is a necessary element in liability. However, a blameworthy person is not liable for all the damage he can be said to have "caused". 18

[3] Civil Wrongs Law, ss 13 and 14; *Brodie and Others v Theodourou and Others*, Civil Appeal 9497, 22. 9. 1998.

19 Causation is a complicated notion. In order to attribute responsibility, plaintiffs have traditionally been required to persuade the judge that it was more likely than not that the particular defendant's conduct contributed to the occurrence of the harm in issue. If a person manages to persuade the judge of that, even by a bare margin, then he should obtain full compensation. Causation is a question of fact.

20 In deciding this issue, the test applied by the courts is neatly illustrated in *Barnett v Chelsea and Kensington Hospital Management Committee*,[4] known as the "but for" test. Once a causal connection between the defendant's conduct and the plaintiff's harm is established in this sense, it must be asked whether this connection is sufficient for it to be fair to impose liability on the defendant. Apart from causation, the following points relating to the issue of "remoteness of damage" must be considered:

- The damage must be of a kind recognised by law.
- There must be foreseeability of damage to the plaintiff. Foreseeability is a question of fact. As Lord Reid said, "The defendant will be liable for any type of damage which is reasonably foreseeable as liable to happen even in the most unusual case, unless the risk is so small that a reasonable man would in the whole circumstances feel justified in neglecting it".[5]
- The damage sustained must be the same as the damage that was foreseen; otherwise, it is considered to be too remote. The case of *The Wagon Mound*[6] is the governing authority. An increasingly favoured interpretation of that case is that the tortfeasor is liable for any damage which he can reasonably foresee, however unlikely it may be, unless it can be brushed aside as farfetched.

21 The principle that the defendant is not relieved of liability because the damage was more extensive than might have been foreseen is applied by the Cyprus courts.

22 There are no rules allocating the costs of testing or of other means to establish causation.

(b) How is the burden of proof distributed?

23 The claimant has the legal burden of proof on the question of causation. This means that the claimant must show, by evidence, that the defendant caused the incident on the balance of probabilities.

24 The principle instance under Cyprus law where the onus of proof shifts to the defendant is provided for in section 55 of the Act, which embodies the well-known maxim of *res ipsa loquitur* and it reads as follows:

[4] (1969) 1 *Law Reports, Queen's Bench* (QB) 428.
[5] *Koufos v C Czarnikow Ltd* (1969) 1 *Law Reports, Appeal Cases* (AC) 350, 385.
[6] (1961) AC 388.

> "In any action brought in respect of any damage in which it is proved that the plaintiff had no knowledge or means of knowledge of the actual circumstances which caused the occurrence which led to the damage and that damage was caused by some property of which the defendant had full control, and it appears to the court that the happening of the occurrence causing the damage is more consistent with the defendant having failed to exercise reasonable care than with his having exercised such care."

25 In *Achilleas Morides v Chrystalla Ioannou*[7] an action was brought by the appellant against the respondent in respect of damage caused to his storeroom by the fall of the respondent's first floor. It was repeated that section 55 of the Act makes the *res ipsa loquitur* principle of English Common Law part of the statutory law of Cyprus.

26 Furthermore, in *Costas Michael Skapoullaros v Nippon Yusen Kaisha and Others*,[8] A Loizou J, the then President of the Supreme Court, stated in his judgment:

> "The plaintiff also rested his case on the doctrine of res ipsa loquitur. This doctrine was fully explained (see also *Pavli v Avraam*, Civil Appeal 10067, 24 February 2000) in *Emir Ahinet Djemal v Zinz Israel Naviga tion Co Ltd and Another*, (1967) 1 CLR 227, at p 244, by reference to the English authorities and with which exposition of the law I fully agree. Indeed in the circumstances of this case this doctrine does apply if we are to ignore the explanation for its cause offered by the witnesses for the plaintiff. In such a case, then we are left with a situation where the cause of the accident is not known. Then, the res can only speak so as to throw the inference of fault on the defender in some cases where the act of the defender is unexplained."

27 A recent judgment of the Supreme Court of Cyprus referring to the doctrine of *res ipsa loquitur* is *Geopan Co Ltd and Others v Panagi*,[9] which cites the case of *Achilleas Morides*, where the following was stated:

> "We are discussing issues relevant to the mechanisms of proving breach of the duty of care assuming that such a duty exists; otherwise the attempt is purposeless. The doctrine of res ipsa loquitur is of no significance at this preliminary stage."

28 According to section 52 of the Law, in any action brought in respect of any damage, the onus of proof shifts to the defendant when the damage was caused by any dangerous thing other than fire or an animal and the defendant was the owner of or the person in charge of such thing or the occupier of the property from which that thing escaped.

[7] (1973) 1 *Commonwealth Law Reports* (CLR) 117.
[8] (1979) 1 CLR 448.
[9] Civil Appeal 9594, 10. 11. 1999.

29 It is possible that *res ipsa loquitur* could apply to cases of contamination by GMOs. Of course, the courts have not yet considered this application of the doctrine.

(c) How are problems of multiple causes handled by the general regime?

30 Where there are multiple causes of the claimant's damage the effect of the but for test may be to leave the claimant with no remedy. The courts in Cyprus have not encountered cases based on multiple causation but would be likely to follow the common sense approach of the English courts where the effect of multiple causes will depend on whether causes are concurrent or successive. With concurrent causes the courts have adopted a common sense approach, by apportioning liability on a proportionate basis, dependent on the facts. The courts apportion liability between multiple defendants and then proceed to consider whether the claimant should suffer some reduction in his claim for contributory negligence.

31 With successive causes, the cases of *Baker v Willoughby*[10] and *Jobling v As sociated Dairies*[11] indicate the law in these difficult circumstances. Lord Keith stated "… the assessment of damages for personal injuries involves a process of restitution in integrum. The object is to place the injured claimant in as good a position as he would have been in but for the accident. He is not to be placed in a better position".

32 With regard to joint and several tortfeasors: If two or more people cause one plaintiff different injuries, then no special rule applies. The plaintiff may sue each tortfeasor separately for the injury each has caused. Where two breaches of duty or other tortious acts cause one single injury the position is more complex. The basic position is that the plaintiff can sue all or any of them and each individual is wholly liable for the full extent of the harm although the plaintiff can of course only recover his loss once.

33 As has been stated, the claimant has the legal burden of proof on the question of causation and must prove causation on the balance of probabilities. The courts in Cyprus have not developed special rules which apply to difficult cases on causation. However, the courts in England have encountered some problems with proof of causation. A leading case in this area is *McGhee v National Coal Board*[12] where the House of Lords' Lord Wilberforce found the defendants liable as they had "materially increased the risk of injury". This was the test to be applied in such cases. The defendants were not allowed to hide behind the evidential difficulties of showing what had actually caused the harm. During the 1980's, it became clear, in a number of cases that the Court of Appeal and the House of Lords had different views about the decision in

[10] (1969) *All England Law Reports* (All ER) 1528.
[11] (1982) AC 794.
[12] (1973) 1 *Weekly Law Reports* (WLR) 1.

McGhee and how to deal with difficult cases on the proof of causation. The Court of Appeal was adopting a far more liberal approach than the House of Lords and what was needed was for a case to be appealed to the House of Lords, so that they could try to resolve the situation. This happened in the leading case of *Wilsher v Essex Area Health Authority*.[13] In this case there were serious evidential difficulties for the plaintiff in proving causation and the House held that in all cases, the claimant has the burden of proving on the balance of probabilities that the defendant caused the damage. Lord Bridge said: "Whether we like it or not, the law, which only Parliament can change, requires proof of fault causing damage as the basis of the liability in tort."

34 The House of Lords faced yet another difficult case concerning injuries to employees in 2002 in *Fairchild v Glenhaven Funeral Services Ltd*,[14] where Lord Nicholls said "the unattractive consequence, that one of the potential wrongdoers will be held liable for an injury he did not in fact inflict, is outweighed by the even less attractive alternative, that the innocent claimant should receive no recompense … it is this balance which justifies a relaxation in the normal standard of causation required."

35 The courts in Cyprus have not yet faced the challenge of such difficult cases on causation. As has been stated, they would likely (but are not obliged to) follow the lead of the English courts.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

36 Under Cyprus law, there are certain common elements of tortious liability which may be reduced to three primary categories, namely:

- Act or omission on the part of the defendant or a person for whom he is vicariously liable;
- Mental element, whether of intention or negligence; and
- Damage.

(i) Act or Omission

37 With regard to the first element, "it is the act of the defendant which entails liability on him for the harm happening to another whether the act be one of commission or omission", e.g. positive acts trigger liability in tort more easily than omissions to act. The duty not to cause harm seems stronger than the duty to prevent it happening.

[13] (1987) 2 WLR 425.
[14] (2002) 3 All ER 305.

38 The law has rarely provided a remedy for damage arising from mere omission. However, an important distinction must be drawn. A failure to do something in the course of an activity will be regarded as a bad way of doing the act, not as an omission. Thus, a failure to stop at a "Give Way" sign while driving a car is a bad way of performing the active operation of driving. An omission is the failure to do some act as a whole, for which there is generally no liability but, in some cases, the law has imposed a duty to prevent inertia. Omission must be voluntary, i.e., a person knows that he is under a duty to act or of the circumstances giving rise to the duty and abstains.

39 In the case of *Slater v Worthington's Stores*[15], it was stated that an act or omission is intentional with regard to its consequences in so far as the consequences are foreseen and desired. It is negligent with regard to consequences in so far as the consequences are not averted when a reasonable man would have averted them. Where the consequences are averted but are not desired, the term "recklessness" is to be preferred to "gross negligence", which is sometimes used.

40 Second, liability may be based on fault. Sometimes, an intention to injure is required but more often negligence is sufficient. In other cases, which are called cases of strict liability, liability arises in varying degrees independent of fault.

41 Finally, whereas most torts require damage resulting to the plaintiff which is not too remote a consequence of the defendant's conduct, a few (such as trespass and libel) do not require proof of actual damage.

(ii) Mental Element

42 The mental element has been customarily analysed in three categories, namely:

- Absolute or strict liability;
- Intention; and
- Negligence.

- Absolute or Strict Liability

43 The common feature of torts classified as of strict liability is that there can be liability independent of intention or negligence on the part of the defendant. Strict liability is essentially a negative idea in tort, as it means liability without proof of fault. It does not tell us what liability is based on. In the twentieth century the emphasis has been on fault based liability and strict liability has been generally frowned on by the judiciary. However, some enclaves of strict liability have survived and others have been created. There is no coherent theme to link these areas. Some, such as the rule in *Rylands v Fletcher*[16] applied in the Cyprus Courts, are judicial attempts to deal with problems created by the

[15] (1941) *Law Reports, King's Bench* (KB) 1488, (1941) 3 All ER 28.
[16] (1868) *Law Reports* (LR) 3 *House of Lords* (HL) 330.

Industrial Revolution. Yet again, the employer's vicarious liability for the torts of his employee can best be described as pragmatic responses of the law to a particular problem. Stricter forms of liability tend to exist in the older torts such as conversion and nuisance where liability is based on the fact of invasion of the plaintiff's interest rather than the defendant's conduct.

- Intention

Intention as a jurisprudential term means the state of mind of a person who foresees and desires that certain consequences shall result from his conduct. Intention refers to the defendant's knowledge that the consequences of his conduct are bound to occur where the consequences are desired or, if not desired, are foreseen as a certain result. Recklessness is usually categorised with intention where it is used to signify the defendant's awareness of a risk that the consequences will result from his act. 44

- Negligence

Negligence in tortious liability is complicated by the existence of a separate tort of negligence. At this point, the concern is with negligence merely as a state of mind, i.e., either a person's lack of attention to the consequences of his conduct or the deliberate taking of a risk without necessarily intending the consequences attendant on that risk. 45

The claimant adversely affected by GMOs would be most likely to sue in negligence or nuisance under Cyprus law – as to nuisance, see below. 46

Negligence – According to section 51(1) of the Law, negligence consists of causing damage by: 47

- Doing some act which in the circumstances a reasonable, prudent person would not do or failing to do some act which in the circumstances such a person would do[17]; or
- Failing to use such skill or take such care in the exercise of a profession, trade, or occupation as a reasonable, prudent person qualified to exercise such profession, trade, or occupation would in the circumstances use or take[18].

Compensation may only be recovered[19] by any person to whom the person guilty of negligence owed a duty, in the circumstances, not to be negligent. It was said, in *Sofocleous and Another v Georgiou and Another*[20] that it has been stated in a number of cases that negligence is a specific tort and in any 48

[17] For the criterion of the reasonable, prudent person, see the recent case of *Ioanzzidoa v Nicolaides*, Civil Appeal 10339, 18. 2. 2000.
[18] *Municipality of Limassol v Toynazou*, Civil Appeal 9412, 7. 6. 1999.
[19] *Spyrou v Hadjicharalambous Bros* (1989) 1 CLR 298.
[20] (1978) 1 CLR 154.

given circumstances is the failure to exercise that care which the circumstances demand.

49 What amounts to negligence depends on the facts of each particular case and the categories of negligence are never closed.

50 The landmark decisions of *Donoghue v Stevenson*[21], *Hedley Byrne & Co Ltd v Heller Partners*[22], *Azazzs v London Borough of Merton*[23], *L P Frazzgeskides Co Ltd v Ioannis Mania*[24], *The Attorney General v Pentaliotis Panapetrozr Estates Ltd* and *Pezataliotis Panapetrozr Estates Ltd v The Attorney General*[25]; were referred to in *Sofocleous*, where it was stated that "negligence is a fluid principle which must be applied to the most diverse conditions and problems of human life".

51 In negligence, the duty is not simply a duty to act carefully, but also not to inflict damage carelessly. A general test by which the existence or non-existence of a duty of care is determined was formulated by Lord Atkin in *Donoghue v Stevenson.* The duty exists wherever one person is in a position to foresee that an act or omission of his may injure another, and by "may" is generally meant not "possibly might" but "is reasonably likely to".

(b) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

52 Nuisances are divided into two main classes, i.e., public nuisances and private nuisances. A public nuisance is also a crime indictable under Common Law, as opposed to private nuisance, which is solely a tort.

53 The focus of nuisance is primarily on the particular interest of the plaintiff affected rather than on the nature of the conduct of the defendant responsible. Accordingly, once undue interference is proved, the task of the plaintiff is easier than in negligence. "The great merit of framing the case in nuisance as distinct from negligence," Denning LJ once observed, "is that it greatly affects the burden of proof. It puts the legal burden where it ought to be, on the defendant, whereas in negligence it is on the plaintiff."[26]

54 Public nuisance is an unlawful act or omission which materially affects the comfort and convenience of a class of subjects who come within the sphere of its operation. Public nuisance is not necessarily connected with an interference with the use of land, and therefore the plaintiff need not have an interest in land to be entitled to file an action.

[21] (1932) AC 562.
[22] (1963) 2 All ER 575.
[23] (1977) 2 All ER 492.
[24] (1989) 1(A) CLR 70.
[25] Civil Appeals 9067 and 9062, 23. 10. 1998.
[26] *Heuston and Buckley*, Salmond and Heuston on the Law of Torts (21st ed. 1996).

Under section 45 of the Law, a public nuisance consists of some unlawful act or omission to discharge a legal duty where such act or omission endangers the life, health, property, or comfort of the public or obstructs the public in the exercise of some common right. 55

Furthermore, in section 45, a provision is made that no action shall be brought in respect of a public nuisance[27], save by: 56

- the Attorney-General for an injunction; or
- any person who has suffered special damage thereby.

Private nuisance may be described as unlawful interference with a person's use or enjoyment of land, or some right over or in connection with it.[28] 57

Under section 46 of the Act, a private nuisance consists of any person so conducting himself or his business or so using any immovable property of which he is the owner or occupier as habitually to interfere with the reasonable use and enjoyment, having regard to the situation and nature thereof, of the immovable property of any other person. The provisions of this section shall not apply to any interference with daylight. No plaintiff may recover compensation in respect of any private nuisance unless he has suffered damage thereby.[29] 58

In *Slosif Paphitis v Nicos Stavrou*[30] it was stated that "an essential ingredient of this civil wrong is that there should be habitual interference with the reasonable use and enjoyment of immovable property of any other person". The burden was on the appellant to satisfy the court that there was such interference and, according to the findings of the trial court, she failed to do so. 59

On the facts of *Demetriou*, the noise created by the straightening workshop of the defendant was not excessive but was the ordinary noise of a straightening workshop which was audible if one approached the factory closely. Therefore, the noise complained of was not such as to interfere with the comfort and convenience of the appellant and the reasonable use and enjoyment of her property. 60

In *Chrysothemis Palantzi v Ivlicolas Agrotis*, *Chrysothenzis Palantzi v Nicolas Agrotis*[31] it was held that: 61

> "It also is necessary to take into account the circumstances and character of the locality in which the complainant is living; The making or causing of such a noise as materially interferes with the comfort of a neighbour when judged by the standard to which I have just referred, constitutes an

[27] *Alexandros Kiran v Philippos A Protopopas and Another* (1977) 1 JSC 121, 124.
[28] *Read v Lyons & Co Ltd* (1945) KB 216, 236.
[29] *Sakellarides and Another v Michaelides and Two Others* (1965) 1 CLR 367; *Sysneonides and Another v Liasidou* (1969) 1 CLR 457.
[30] (1970) 1 CLR 140.
[31] (1968) 1 CLR 448, 455.

> actionable nuisance and it is no answer to say that the best known means have been taken to reduce or prevent the noise complained of, or that the cause of the nuisance is the exercise of a business or trade in a reasonable and proper manner. Again, the question of the existence of a nuisance is one of degree and depends on the circumstances of the case."

62 Furthermore, it was stated that the law must strike a fair and reasonable balance between the right of the plaintiff to the undisturbed enjoyment of his property on the one hand, and the right of the defendant, on the other hand, to use his property for his own lawful enjoyment.

63 According to section 47 of the Act, it is a defence to any action brought in respect of any private nuisance that the act complained of was done under the terms of any covenant or contract binding on the plaintiff which inures for the benefit of the defendant.

64 It is not a defence to any action brought in respect of a private nuisance that the nuisance existed before the plaintiff's occupation or ownership of the immovable property affected thereby.

(c) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability.

65 See above regarding categories of liability, including strict liability. Torts of strict liability present a more difficult problem with regard to the defence of remoteness of damage. Here foreseeability of damage is not necessary to establish liability, but foresight of harm may be necessary for remoteness purposes.

66 According to section 60 of the Law, it is a defence to any action brought with respect to a civil wrong that the act complained of was done under and in accordance with any enactment.

67 Furthermore, the Common Law defences of inevitable accident and contracting out of liability (waiver) are applied by the Cypriot courts.

68 Mistake is generally no defence in torts of strict liability or in negligence. It is clearly no defence to an action in trespass to land or trespass to goods (and conversion). Its relevance as a defence is limited to cases where "reasonableness" is required, for acting upon a reasonable mistake of fact may then be important.

69 The defence of inevitable accident can be successfully invoked by the defendant when, in doing an act which he may lawfully do, he causes damage without either negligence or intention on his part. In *Theodoulou v Pelopidha*,[32] it

[32] (1981) 1 CLR 230, 234.

was held, *inter alia*, that, if the facts proved by the plaintiff raise a *prima facie* case of negligence against the defendant, the burden of proof is then cast on him to establish facts to negative his liability, and one way in which he can do this is by proving inevitable accident. In *Theodoulou v Pelopidha*, reference was made to *Merchant Prince*[33], where the following was stated:

> The burden rests on the defendants to show inevitable accident. To sustain that, the defendants must do one or other of two things. They must either show what was the cause of the accident, and show that the result of that cause was inevitable; or they must show all the possible causes, one or other of which produced the effect and must, however, show with regard to every one of these possible causes that the result could not have been avoided. Unless they do one or other of these two things, it does not appear to me that they have shown inevitable accident.

The defence of extinction of liability may be invoked when there exists such an agreement which may be construed before or after the infliction of the damage and may be covering personal or vicarious liability. However, such agreements are occasionally prohibited by various statutes or the Common Law. The Common Law prohibits such agreements when these are in conflict with public policy.[34] 70

4. Damage and remedies

(a) How is damage defined and measured?

Generally, the law of torts is concerned with those situations where the conduct of one party causes or threatens to cause harm to the interests of other parties. Compensation is a major function of the law of torts and it is best performed only when compensation is rightly payable. The very concept of compensation entails the notion of harm or damage. Nevertheless, damages are sometimes awarded where no harm has been suffered, its absence being concealed by the statement that the plaintiff's rights were infringed. 71

The main function of the law of torts is the recognition and protection of interests. An interest may be defined as a claim or need or desire of a human being or a group of human beings which the individual or group seeks to satisfy and of which, therefore, the ordering of human relations in a civilised society must take account. Harm or damage to those interests may take many forms, such as injury to the person, damage to physical property, damage to financial interests, and injury to reputation. In any given situation, it is of the essence that the plaintiff should be restored to the position he would have been in had the tort not been committed. 72

Proof of any kind of damage will not give rise to a claim in tort. 73

[33] (1892) P 179, 189.
[34] *W.V.H. Rogers*, Winfield and Jolowicz on Tort (13th ed. 1989) 712.

74 There are necessarily some types of loss which the law cannot recognise as giving rise to a legally redressable injury. Thus, some harm is too trivial to found an action, while the courts look on other harm as part of the give and take of life in a world in which interests must often compete and conflict.[35]

75 Theoretically, deterrence could be a function of the law of torts by the application of a standard of reasonable care. It is certainly true that at least some parts of the law dealing with premeditated conduct do help to serve this purpose as well as that of deciding whether or not redress for damage already suffered should be ordered.

76 Another function which the law of torts performs is that of allocating or redistributing loss and this is so in relation to actions where the plaintiff is seeking monetary compensation for the injury he has suffered. "It is the business then of the law of torts to determine when the law will and when it will not grant redress for damage suffered or threatened and the rules of liability whereby it does this."[36]

77 An action in tort is usually a claim for pecuniary compensation in respect of damage suffered as the result of a legally protected interest. Furthermore, the task of the courts is, first, to decide which interests should receive legal protection and, second, to hold the balance between interests which have received protection.[37]

78 In *Paraskevaides (Overseas) Ltd v Christofis*[38], it was stated that the object of an award of damages is to do justice to the loss and damage of the injured party without imposing an inordinate burden on the tortfeasor. In other words, the award must be socially acceptable. Consequently, the social ethos at the material time is invariably a consideration relevant to the task, particularly with regard to non-pecuniary loss. Pecuniary loss, being more amenable to mathematical calculation, is less dependent on social norms. The aim of the exercise is to arrive at a figure at the end of the process that is fair and reasonable in the circumstances of the case.

79 Any person who shall suffer any injury or damage by reason of any civil wrong committed in the Republic will be entitled to recover from the person committing or liable for such civil wrong the remedies which the court has power to grant.[39]

80 The courts, in the performance of their duty, should give fair and reasonable compensation to the plaintiff to put him in the same position, so far as money

[35] *Allen v Flood* (1898) AC 13.
[36] *W.V.H. Rogers* (supra fn. 34) 2. 5 Civil Wrongs Law, Cap 148.
[37] *Heuston and Buckley*, Salmond & Heuston on the Law of Torts (21st ed. 1996) 13. *Paraskevaides (Overseas) Ltd. v Christofis* (1982) 1 CLR 789, 793.
[38] (1969) 1 CLR 332, 340.
[39] Civil Wrongs Law, s 3; *Spyrou v Hadjicharalambous* (1989) 1 CLR 298, 304.

can do it, as he would have been in had he not sustained those injuries.[40] The general principle of assessment is restitution in integrum.

In economic torts, the basic question is what has the plaintiff lost, not what the defendant can pay.[41] 81

(i) General Damages

General damages are for general damage. It is the kind of damage which the law presumes to follow from the wrong complained of and which therefore need not be expressly set out in the plaintiff's pleadings. General damages are awarded for physical injury, pain and suffering, loss of amenity of life, and the loss of future earnings. 82

In *Kyriakos Mavropetri v Georgiou Louca*[42] it was stated that the case law reveals a steady increase in the level of general damages awarded, reflecting a greater sensitivity towards human pain, worry about disability, and distress due to exclusion from daily human activities.[43] 83

(ii) Special Damages

Special damages signify the element of particular harm which the plaintiff must prove.[44] 84

In *Emmanuel and Another v Nicolaou and Another*[45] it was stated that special damages are such as the law will not infer from the nature of the act. They do not follow in ordinary course. They are exceptional in their character and therefore must be claimed specially and proved strictly. 85

(iii) Exemplary Damages

Exemplary damages are not compensatory. They are awarded to punish the defendant and to deter him from similar behaviour in the future. In relation to the law governing the issue of exemplary damages, the English case of *Rookes v Barnard* is considered to be quite remarkable. In that case, the court set out the requirements that must be met to award such compensation. 86

[40] *Poulloic v Constantinou* (1973) 1 CLR 177; *Paraskevaides (Overseas) Ltd v Christofis* (1982) 1 CLR 789.
[41] *General Tyre and Rubber Co Ltd v Firestone Tyre Co Ltd* (1975) 1 WLR 819, 824.
[42] (1995) 1 CLR 66, 74.
[43] *Paraskevaides Overseas Ltd v Christofi* (1982) 1 CLR 789; *Polycarpou v Adamoy* (1998) 1 CLR 727; *Finikarides and Another v Georgiou and Others* (1991) 1 CLR 475; *Panayi v Theodorou* (1992) 1 (B) CLR 1303; *Constantinou L, Ioannou* (1993) 1 CLR 669.
[44] *Heracleous v Pitrou* (1994) 1 CLR 239; *Kyriakides v Fralagoaadis & Stefanou Ltd and Others*, Civil Appeal 9811, 26. 2. 1999; *Loizou v Morritzis*, Civil Appeal 10085, 21. 6. 1999.
[45] (1977) 1 CLR 15, 34.

87 However, in *Papakokkinou and Others v Kanther*[46], the Supreme Court of Cyprus, without ruling on the issue whether the principles of *Rookes v Barnard* apply in Cyprus, preferred the wider principle permitting the award of exemplary damages where the defendant's conduct was so mischievous that such punishment was necessary. Mischievous conduct is the kind which demonstrates intense arrogance, rudeness, or an immoral motive and especially where it tends to humiliate the victim of the tortious act.

88 Exemplary damages are punitive in nature; they are intended to teach the defendant that "tort does not pay", and they are awarded in addition to compensatory damages.

(iv) Nominal Damages

89 Nominal damages are a small sum of money, awarded by way of recognition of the existence of some legal right vested in the plaintiff and violated by the defendant. Nominal damages are recoverable only in torts which are actionable *per se*.

90 In *Antoniades v Stavrou*,[47] where the appellant proved the existence of the wrongdoing but failed to prove the exact damage he had suffered, the court awarded nominal damages instead of rejecting the action.[48]

(v) Liability to Pay Damages for Pure Economic Loss

91 The courts in Cyprus have had little opportunity to develop a policy and a body of case law concerning this difficult area. Only one case is reported in the Cyprus law reports where the central issue was the recoverability of economic losses. And this case involved a negligent statement as opposed to a negligent act; nevertheless, the approach taken in this case gives an insight into the approach that would be taken to any claim for damages for pure economic loss resulting from actions, rather than words, i.e. from contamination by GMOs.

- Damages for Negligent Misstatement

92 In the past, according to the rule, someone could not be held liable for negligent misstatements. Therefore, when a statement was made, even if the intention was for somebody to act on the basis of this statement and acted on the basis of this to his detriment, the person who made the statement was not liable in *Candler v Crane, Christmas & Co*.[49]

[46] (1982) 1 CLR 65.
[47] Civil Appeal 9336, 29. 5. 1998.
[48] *Ttaaztis v Hadjirazichael and Another* (1982) 1 CLR 301; *Papakokkinou and Others v Theodosiou* (1991) 1 CLR 379
[49] (1951) 2 KB 164.

This rule was reversed starting with the judgment in *Hedley Byrne & Co. v* 93
Heller & Partners.[50] The current legal position based on the English jurisprudence was exposed in the Cypriot case *Premier Chemical Co. Ltd v Bank of Cyprus Ltd etc*.[51] When during the usual course of work somebody asks for information or advice from another person under such circumstances where a rational person would reasonably realise that that is being entrusted and there is intention of action upon this information or advice, then the person providing it is obliged to show care. Whenever they do not show care and the other person acts on the basis of this with a resultant economic loss, then they are held liable for the loss.

JUDGMENT – *Premier Chemical Co. Ltd v Bank of Cyprus Ltd etc.* (1998)[52]

R. GAVRILIDES, JUDGE: The appellant company produces and exports pesticides to various countries abroad. Within the framework of its activities, it was cooperating with the appellant commercial bank. For many years, the appellant was engaged in commercial transactions with Iraq. For the exports to the said country, they received their payments in US dollars. The payment was being made through a bank of Iraq to the appellant for the appellant. In 1984 the payment was made with an irrevocable confirmation of state credits on behalf of the issuing bank of Iraq. Although this confirmation was given to the appellant, the payment was not direct; it was made within the next twelve months. In 1985 the payment method was modified. The issuing bank of Iraq was not providing an irrevocable confirmation. During that same year, due to the Iran-Iraq war, numerous fluctuations in the exchange rate between the dollar and the Cyprus pound had been observed. In order to protect the transactions of the appellant, a pre-sale of dollars to the Central Bank was conducted. With this method, the appellant was covered and knew in advance the amount they would receive in Cyprus pounds within twelve months of the commercial act. The presale was done through the appellant bank.

The pre-selling process was regulated by the Central Bank, which had introduced the institution of deferred coverage as a measure to protect traders from fluctuations of the exchange rate between the Cyprus pound and various currencies. The traders knew in advance the amount they would receive in Cyprus pounds from their exports for a period of time of up to twelve months since the agreement of the commercial act, regardless of the fluctuations in the currency of the act against the Cyprus pound.

The deferred coverage was operating within the framework determined by the relevant administrative Circulars of the Central Bank: the "basic" Circular which was issued on 29/12/1972, the Circular "amendment

[50] (1963) 2 All ER 575. See *Caparo Industries Plc v Dickman* (1990) 2 A.C. 605, *Henderson v Merret Syndicates* (1994) 3 All ER 506 and *White v Jones* (1995) 1 All ER 691.
[51] (1998) 1 Supreme Court Judgments 1931 36 05.
[52] 1 Supreme Court Judgments 1931 36 05.

No.1" which was issued on 5/4/1983 and the Circular "amendment No.2" which was issued on 27/6/1984.

According to the "basic" Circular, the exporter that had a firm contractual commitment for the payment of foreign exchange presented to the commercial bank within a month from the commercial act the documents that formed the "firm contractual commitment". Next, the commercial bank made an agreement with the Central Bank to pre-sell the foreign exchange. On the basis of the agreement, the exporter knew in advance the exact amount of Cyprus pounds they would receive when the foreign exchange would be transferred from the commercial bank and delivered to the Central Bank. If the relevant documents were presented to the commercial bank after the course of one month from the commercial act, the exporter would use another, special exchange rate, slightly less favourable than the normal one.

The Circular "amendment No.2" covered the exporter that did not have a "firm contractual agreement" for the payment of foreign exchange, because for example, they made an offer of some duration and were expecting its acceptance in order for a contract to be concluded. In this case, the Central Bank took as a basis the best exchange rate of the day and when the offer was changed into a "firm contractual agreement" the exporter would present their contract to the Central Bank via their bank and a new exchange rate would be used after several arrangements based on the "basic" Circular. If the contract was not presented, the Central Bank would use the worst exchange rate of the past twelve months, which meant that this difference would eventually burden the client of the commercial bank.

About halfway through 1986, the appellant shipped pesticides bound for Iraq and then presented the shipping documents with the invoices to the appellant bank asking for the expected foreign exchange to be pre-sold to the Central Bank. The appellant having considered that the documents presented did not consist of a "firm contractual commitment" proceeded to the conclusion of three contracts with the Central Bank, having as a basis the Circular "amendment No.2". The Chief Executive Officer of the appellant was informed about the contracts and signed them.

Eventually, the commercial act with Iraq was cancelled.

Due to the fact that the appellant failed to use the "basic" Circular as it should have done and used the "amendment No.2" instead, the appellant holds the position that they suffered economic loss and that the appellant is obliged to provide restitution. This economic loss corresponds to the difference in the exchange rate of the dollar against the Cyprus pound, emerging from the submission date of the three contracts and their expiry dates, i.e. £33,000.00, not including interest and a fine of £900.00. According to the appellant, the loss was due to the fact that the "basic" Circular was not followed as should have been done. Consequently, the

appellant did not benefit from the difference in the exchange rate of the dollar against the Cyprus pound, which on the expiry date of the contracts had decreased. If the pre-sale was done according to the "basic" Circular, this would mean that the emerging difference would be credited to the appellant and by extension to the appellant. However, since the contracts followed the Circular "amendment No.2" at the time of closure, the exchange rate was to the detriment of the appellant, on the contrary to what would have happened if the contracts followed the "basic" Circular.

The appellant supports their allegation that the appellant should have implemented the "basic" Circular and not the "amendment No.2" by the position that the waybill and the invoices consisted of a "firm contractual agreement", which is contrary to what the appellant considered. Furthermore, the appellant supports their demand for restitution on the basis of breach of duty and or breach of agency agreement and or breach of fiduciary duty and or breach of trust and or negligence on behalf of the appellant during foreign exchange trading.

More specifically, regarding the issue of negligence which is the main focal point of the appeal, the appellant aimed at supporting the alleged negligence on behalf of the appellant on the basis of the principle enunciated by the House of Lords in the case of *Hedley Byrne & Co. v Heller & Partners* (1963) 2 All E.R. 575, as analysed and explained by more recent judgments of the House of Lords in the cases of *Caparo Industries Plc v Dickman* (1990) 2 A.C. 605, *Henderson v Merret Syndicates* (1994) 3 All E.R. 506 and *White v Jones* (1995) 1 All E.R. 691. According to this principle, if during the usual course of things a person seeks information or advice from another person, who has no contractual or other obligation to provide information or advice under such circumstances, in which a rational person would reasonably know that they are being entrusted, i.e. the person seeking the information or advice is counting on their specialised training and judgment, and the person asked decides to provide these without making it clear that they are informing or advising without taking any responsibility, then, this person has a legal obligation under the circumstances to show necessary care before providing their answers. A failure to show the appropriate care substantiates the offence of negligence, if due to the answers given, the other person acted in a way that resulted in their suffering economic loss.

The question posed to the District Court was whether in this case the appellant succeeded in providing satisfactory evidence, which proved that between them and the appellant a relation was created within the framework of which, the principle under *Hedley Byrne* could be applied. Such evidence, as ascertained by the District Court – with which we agree – was not offered. According to the testimony of the CEO of the appellant, who was the only witness on the matter, the relevant conversation through the phone between himself and the competent employee of the appellant before the three contracts were ready, was simple. He was told that the

> Central Bank's Circular "amendment No.2" would be followed, as had happened the year before and he agreed. Later, when the contracts were ready, he signed them without any discussion. It was not shown, by any part of the testimony given that information or advice were provided to the appellant concerning the way in which the CEO would proceed to pre-selling the foreign exchange. Besides, from the whole testimony, it emerges that as appreciated by the District Court, the CEO of the appellant, due to his extensive experience, had full knowledge of the content and the effects of the Circulars and was not in need to ask, and did not ask for any information or advice whatsoever. Apart from this, there is not a trace of evidence that the appellant had undertaken any obligation or assumed responsibility to inform or advise their clients on the Circular of the Central Bank applicable in each case. If there was an obligation this would consist in simply explaining the Circulars to the client and nothing more. The choice was a client's issue. Even if there was a will to consider that under the circumstances there was a duty of care against the appellant and that advice was given, still there exists no appropriate testimony that the advice was wrong or was negligently provided. On the contrary, there is a testimony from the competent officer of the Central Bank, the witness for the defence 1 Iordanis Elevtheriou, Chief Officer in the Department of Foreign Exchange according to which, under the circumstances, it was right to follow the Circular "amendment N.A" in relation to the three contracts under discussion.
>
> In light of the evidence provided before the District Court, we consider that its findings and conclusions were reasonably allowed. In the same way, the evaluation of the testimony on behalf of the chief executive of the appellant was also reasonably allowed.

94 The appeal was dismissed with costs.

95 In the case *District Attorney v Pentialiotis & Papapetrou Estates Limited etc.*, it was noted with reference to the English jurisprudence, *Banque Financiere v Westgate Insurance Co*.[53], that under certain preconditions, liability might also be held if someone neglects to speak.

- Negligent act

96 Despite the fact that economic loss as a result of bodily injury or harm to property emerging from a negligent act could always be considered and awarded as part of damages, in general terms, no liability was recognised for "pure" economic loss.[54] Although there were certain modifications to this principle, the law was brought back to its initial position and it seems that there is no such liability unless the case falls within the parameters of *Hedley Byrne.*

[53] (1989) 2 All ER 952.

[54] For the distinction between "pure" and "resultant economic loss" see *Spartan Steel & Alloys Ltd v Martin & Co. (Contractors) Ltd* (1972) 3 All ER 557, (1973) 1 QB 27.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

Based on the law as described in detail above, damages would not be recoverable under Cyprus law, in either eventuality. 97

(c) Where does your legal system draw the line between compensable and non compensable losses?

As explained above, the law of tort does not recognise claims for pure economic losses resulting from negligent acts. Actual physical harm would have to be proved in order for a claim to exist, pure financial loss would not suffice. 98

(d) What are the criteria for determining the amount of compensation in general?

Under the existing law, the plaintiff could claim compensation for physical damage to property and any direct consequential loss. However, pure financial losses, e.g loss of profit anticipated on the sale of the crops would not be recoverable. 99

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

There is no financial limit to liability, although compensation in Cyprus is extremely low compared to England despite other similarities in the legal systems. The victim of a tort is obliged to mitigate his loss, i.e. he may not claim damages in respect of any part of his loss that would have been avoidable by reasonable steps on his part. 100

The limitation rules were initially contained in the Limitation of Actions Law, Cap 15, which was suspended in 1964 by the House of Representatives, due to political conflict. On 22 November 1990, the House of Representatives enacted the Limitation of Actions (Temporary Provisions) Law, (Law 217 of 1990) which provides that all actionable rights relating to the tort of negligence and which are the result of accidents that occurred between 1 January 1964 and 31 October 1984 are statute-barred if in the meantime no action had been brought before the court. Rules on limitation are to be found in section 68 of the Law, which reads as follows: 101

> No action shall be brought in respect of any civil wrong unless such action is commenced:
> (a) within two years after the act, neglect or default for which the complaint is made; or
> (b) where the civil wrong causes fresh damage continuing from day to day, within two years after the ceasing thereof; or

(c) where the cause of action does not arise from the doing of any act or failure to do any act but from the damage resulting from such act or failure, within two years after the plaintiff sustained such damage; or
(d) if the civil wrong has been fraudulently concealed by the defendant, within two years of the discovery thereof by the plaintiff, or of the time when the plaintiff would have discovered such civil wrong if he had exercised reasonable care and diligence.

102 Provided that if at the time when the cause of action first arises the plaintiff is under the age of eighteen years or is of unsound mind or the defendant is not in the Republic such period of two years shall not begin to run until the plaintiff attains the age of eighteen years or ceases to be of unsound mind or the defendant is again within the Republic.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

103 There are no operators as the practice is currently illegal. Should it become lawful, insurance may be mandatory as it is for other industries, e.g. the tourist industry which must have suitable public liability insurance.

(g) Which procedures apply to obtain redress in such cases?

104 No procedures are applicable under the present law in Cyprus.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

105 Compensation schemes are extremely rare in Cyprus. There is not even an equivalent to the MIB (Motor Insurers Bureau) to protect against the negligence of uninsured drivers. This lack of compensation schemes goes hand in hand with the non-compensatory culture in Cyprus, previously referred to. The Government has stated that the issue of a fund is under examination.

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

106 No, because GMO crops are illegal, no laws have been passed dealing with such matters as testing for GMO presence.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

There may be specific rules within the agricultural industry, but these are not within the writer's knowledge. 107

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

This is not applicable, given the above comments. 108

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

The legislature has not addressed this issue, although it may well have undisclosed plans to do so. 109

2. General rules of jurisdiction and choice of law

The Courts of Cyprus have jurisdiction to try any action where the defendant is served with a writ within the jurisdiction of Cyprus or where the defendant accepted that the courts of Cyprus have jurisdiction. A writ can be served outside the jurisdiction, with leave of the court. Leave will be granted where the subject matter of the dispute, i.e. the land affected is within Cyprus, or where a civil wrong has been committed in Cyprus. The mechanism for service will depend upon the existence of, and terms of any bilateral agreement with the country concerned. There is extensive case law on whether the case will remain within the jurisdiction of the Cyprus Courts. The party seeking to stay the proceedings in Cyprus would have the burden of proving that the forum is clearly inappropriate. The location of the evidence in the case would be a key factor in the decision. 110

One particular problem which concerns Cyprus is the division of the Island and the possibility of contamination of crops by GMOs originating from the occupied parts of the Island. 111

In the recent case of *Orams v Apostolides*,[55] the issue of the enforceability in England of judgments of the courts of the Republic of Cyprus concerning land within the Turkish Republic of Northern Cyprus was raised. 112

The significance of this is that Cyprus would seek to avoid liability relying upon this decision for any GMOs originating from the North, in proceedings against the Government in the South, either by other EU countries or by the citizens of the South. Based on the decision above, such a defence would be successful. 113

[55] The Times 8. 9. 2006 Neutral Citation Number: [2006] EWHC 2226 (QB).

Economic Loss Caused by GMOs in the Czech Republic

Jiří Hrádek

I. General introduction

1. Czech GMO legislation

The Czech system for regulating genetically modified products is basically based on two groups of legislative measures: (i) on Act No. 78/2004 Coll., on the Use of Genetically Modified Organisms and Genetic Products ("Act on GM")[1] (substantially amended by Act No. 346/2005) and on a statutory instrument executing the Act on GM, Decree No. 209/2004 Coll., on Detailed Conditions for the Use of Genetically Modified Organisms and Genetic Products[2], and further (ii) on Act No. 257/1997 Coll., on Agriculture, as amended ("Act on Agriculture"),[3] and on a statutory instrument executing the Act on Agriculture, Decree No. 89/2006 Coll., on Detailed Conditions for the Production of Genetically Modified Strains.[4] 1

The laws stipulated under (i) fall under the competence of the Ministry of Environment, the latter under the competence of the Ministry of Agriculture. 2

The impact of these laws on the area of liability is only indirect, as there is no specific regulation dealing with the liability issue with respect to GM organisms and products. Thus, the relevant legislation deals with the general provisions of liability in the Czech Civil Code (Act No. 40/1964 Coll.)[5] and Commercial Code (Act No. 513/1991 Coll.).[6] General conditions for public 3

[1] Zákon č. 78/2004 Sb., o nakládání s geneticky modifikovanými organismy a genetickými produkty.
[2] Vyhláška č. 209/2004 Sb., o bližších podmínkách nakládání s geneticky modifikovanými organismy a genetickými produkty.
[3] Zákon č. 257/1997 Sb., o zemědělství.
[4] Vyhláška č. 89/2006 Sb., o bližších podmínkách pěstování geneticky modifikované odrůdy.
[5] Zákon č. 40/1964 Sb., občanský zákoník.
[6] Zákon č. 513/1991 Sb., obchodní zákoník.

law liability for ecological harm[7] are stipulated in the Act on the Environment (Act No. 17/1992 Coll.).[8]

2. Introduction to the Czech laws concerning liability

(a) The regulation of the Commercial Code

4 The regulation of liability in non-labour relations can basically be divided into two legislations: business and civil law legislation.

5 The regulation of liability for damage in business relations is based on the speciality of the regulation stipulated in the Commercial Code with respect to the Civil Code. In that respect, the Commercial Code contains its specific regulation of the liability issue in sec. 373 ff., and this regulation is regarded as "comprehensive", i.e. when the relationship qualifies as a business relationship, the provisions of the Commercial Code shall apply in full regardless of the regulations in the Civil Code.

6 Pursuant to sec. 1 of the Commercial Code, which establishes the material scope of the Commercial Code, the Code regulates *inter alia* business obligations and some other relationships connected with business activities. This provision would cause the regulation of liability in sec. 373 ff. to apply only to business (contractual) relations.

7 However, due to the provision of sec. 757 of the Commercial Code, the regulation of liability shall also apply to extra-contractual (delictual) cases of liability for damage which arise as a consequence of a provision stipulated in the Commercial Code or regulation. Based on this, the regulation covers cases of misuse of a business name, unfair competition, breach of concurrence and some breaches of duties of the members of statutory bodies of business entities. Also, damage arising from specific business relations and damage based on acts closely connected with the Commercial Code, e.g. Securities Act or Stock Exchange Act are covered by that provision.

8 The personal application of certain parts of the Commercial Code is ruled by sec. 261. Relevant for this study is especially sec. 261 (1) of the Commercial Code which provides that this part (dealing with business obligations) of the Code regulates obligations between entrepreneurs, provided that the origin of the obligations clearly indicates that they are related to their business activities, taking all the relevant circumstances into account. Therefore, if damage should arise between or among entrepreneurs or business entities the provisions of

[7] In 2008, the Czech Parliament should approve a new Act on Prevention of Ecological Harm and its Remedying which transposes into Czech legislation Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage.

[8] Zákon č. 17/1992 Sb., o životním prostředí.

the Commercial Code concerning liability would apply. In other case, liability provisions of the Civil Code apply in general.

In conclusion, no provision of the Commercial Code enables the application of the regulation of the liability issue based on the provisions of sec. 373 ff. to cases of damage caused by the dangerous nature of a product or organism unless such damage results from a contractual relationship. For these cases, the general provisions of the Civil Code are applicable. 9

(b) The regulation of the Civil Code

The main source of the civil law legislation, the current Civil Code, was approved in 1964, but was changed in a fundamental way in 1991. The concept of liability based on the provisions of sec. 420 ff. of the Civil Code includes absolute and relative rights. 10

The general provisions in the Civil Code are based on sec. 420, and the regulation includes the general clause defining the conditions for liability of legal and natural persons in delict. Sec. 420 of the Civil Code provides that *every person is liable for damage which he causes by breaching a legal obligation.* This means that under this condition, the distinction between damages based on breach of contract, and liability based on delicts cannot be determined. 11

The civil law theory requires the following elements for liability to be established: (i) breach of a legal duty or an event qualified by the law, (ii) damage, and (iii) causation between the breach and its consequently inflicted harm. In most cases of liability, fault is required, either in the form of negligence or intention. The first three elements of the liability relationship are regarded as objective; on the other hand, fault is a subjective criterion of the liability relationship, i.e. with the particular person connected criteria. 12

A further important provision of the Civil Code is sec. 415. Under this law "*ev erybody is obliged to behave in such a way that no damage to health, property, nature and the environment occurs*". This section provides the legal principle for the prevention of damage which is a general rule for each provision providing for damages under the Civil Code. 13

For both parties to the delictual relationship, it is very important that the Czech Civil Code regulates, in sec. 420 (3), fault as a presumed fact. The defendant-wrongdoer has to prove that he did not act with fault. However, the theory concludes that in this case only an unconscious negligence could be presumed. In fact, this rule presents a reversal of the burden of proof for the benefit of the injured party. 14

(c) A general introduction to cases of strict liability

The provisions relating to strict liability are located in sec. 420a – 437 of the Civil Code (with the exception of sec. 422–424). These are cases which do not need fault to be established. For fulfilment of the facts of a particular case, just 15

three conditions must be met: a legally specified event causing damage, damage and the causation between the incident and the harm caused.

16 The wrongful and qualified event that results in the harm presents a sufficient reason for liability and therefore no fault of the liable person is required. Because no fault is required, the wrongdoer cannot be availed of the right of exoneration, as opposed to a comparable situation where liability is based on fault. In some cases, however, the legislator allows for the wrongdoer to be released from liability if specific legal conditions are met.[9]

17 For a long time the issue has been discussed in Czech legal theory of whether the Civil Code contains a general provision for strict liability in sec. 420a of the Civil Code, which should have a subsidiary effect on all cases regulated in Czech law, i.e. not only for provisions of the Civil Code but also for other statutes. The experts maintain both views. However, according to the majority opinion, there is no general clause for strict liability, in contradiction to liability based on fault. The provision of sec. 420a of the Civil Code presents only a case of strict liability without being a general provision.[10]

18 Sec. 420a of the Civil Code provides for the regulation of the liability of operational activities:

> "Any person shall be liable for damage which he causes to another person while operating a business (sec. 420a (1)). Damage is considered to have been caused while operating a business if it was caused: (a) by an activity performed in the operation of a business or by an item used in that activity, (b) by the physical, chemical or biological impacts of the operation on its surroundings, (c) by the lawful performance or by making arrangements for such performance of those kinds of work which cause damage to someone else's immovables or which substantially impede or make it impossible to use someone else's immovables (sec. 420a (2)). A person shall only exempt himself from liability for damage caused upon proving that such damage was caused either by an unavoidable event not arising from the operation of a certain business or by the conduct of the injured party (sec. 420a (3))."[11]

19 These provisions of the Civil Code should be especially relevant for the purpose of this study.

(d) General introduction to the interference with real property rights

20 In the case of a breach of real property rights, the Czech Civil Code provides for provisions concerning the interference with real property rights, in particular in sec. 127 ff. of the Civil Code. The compensation for this interference shall be subject to provisions concerning liability for damage based on sec. 420 ff.

[9] Sec. 420a, 421, 427 ff., 432 ff. of the Civil Code.
[10] *M. Pokorný/J. Salač* in: *O. Jehlička/J. Švestka/M. Škárová and others*, Občanský zákoník komentář (Civil Code Commentary) (7th ed. 2002) 474.
[11] Translation: *TradeLinks, s.r.o.*, Civil Code "Občanský zákoník" (edn. 2005).

of the Civil Code; however, the Civil Code provides also for specific cases which are compensated independently under the general rules (see below).

(e) General introduction to public law liability for ecological harm

An indirect impact on the area of liability for harm has also resulted from the Act on the Environment, which regulates public law liability for ecological harm. 21

The Act on the Environment sets forth in sec. 10 a definition of ecological harm. Pursuant to this provision ecological harm is a loss or impairment of the natural function of ecosystems caused by damaging their components or disturbing their internal relations and processes as a result of human activity. Pursuant to sec. 27 of the Act on the Environment, everybody who, by damaging the environment or by other criminal activity, causes ecological harm shall restore the natural functions of the damaged ecosystem or of its parts. If this is not possible or if it is not desirable for serious reasons, he shall compensate the ecological harm in a different manner. If this is not possible, he shall compensate the damage in money. The imposition of the obligation is decided by a public authority. 22

As concerns the conditions for the determination of the ecological harm, under the Act on the Environment, the general provisions concerning liability for damage and compensation for damage shall apply. However, the individual cannot receive any compensation in accordance with these provisions because the entitled party is, based on the ecological harm, the state that shall receive all funds from the liable party. 23

The importance of this law consists in the fact that it sets forth some general duties concerning the protection of the environment and the behaviour required. These can become the reasons for both the civil law liability and the public law liability established under special laws for the protection of specific parts of the environment. 24

II. General liability or other compensation schemes

1. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

(i) Introduction

Czech legal theory acknowledges that causality is based on the existence of cause and result in such a manner that without the cause, no result would have occurred. The result must be in direct connection with the cause. 25

26 It may be the case that the result arises as a consequence of another circumstance which was caused by something that can be attributed to a wrongdoer, assuming that this consequential damage was foreseeable and therefore attributable to the wrongdoer. The causality as an inevitable condition of liability must therefore also be concluded in the case when the relation between the cause and the result is indirect; however, this result is the consequence of the cause. Nevertheless, this conclusion is not always accepted by case law and causality is in many cases refused.[12]

27 Contemporary Czech legal theory acknowledges two basic theories concerning the examination of causality which are presented by the authors of a textbook concerning civil law:[13] the theory of equivalency or *conditio sine qua non* (*teorie ekvivalence*) and the theory of adequacy (*teorie adekvátnosti*, *teorie adekvátní příčinnosti*).

28 The theory of equivalency is based on the principle that the causality between the act and the result is always given if the damage would not have been caused had the wrongful activity not taken place. This theory requires, consequently, a certain correction of the choice of all relevant causes, and therefore it is used predominantly in criminal law which is always based on fault.[14] The theory of adequacy, which has been predominantly applied in private law, uses another criterion: the damage is regarded as a result of the wrongful activity if, besides being the condition for the damage, the wrongful act or wrongful event is due to the general nature, or, in the usual course of events and experience, a common result of the damage. For the theory of adequacy, therefore, a cause of a wrongful result is only such a wrongful act or event which would have been objectively foreseeable to any average person, i.e. also to the person to whom the relevant cause is attributable. The theory of adequacy is used predominantly in civil law which, in addition to subjective-based fault, also uses an objective-based examination of cause and result.[15]

29 The above-mentioned approach is influenced by a 20-year-old decision of the Supreme Court of the Czech Republic, published under R 7/1979. However, this approach was changed, or a change has been commenced, by a decision of the Supreme Court dated 24 May 2001[16] in which it concluded that even in a circumstance where the defendant is at the same time responsible for the damage to the plaintiff's item, this does not exclude the causal connection between the breach of duty resulting in the damage and the damage which the plaintiff

[12] R 7/1979 "The health of the plaintiff was damaged as a consequence of the reaction to the death of her child. The alleged cause therefore consists of the fact which alone is the result for which the defendant is held liable. […] Therefore, the causality as the legal condition of the li ability is missing. The direct result of the breach of the legal duty of the defendant was the death of the plaintiff's child and not the damage to the plaintiff's health."

[13] *J. Švestka* in: *M. Knappová/J. Švestka and others*, Občanské právo hmotné, vol. II (Substantive Civil Law) (3rd ed. 2002) 457 ff.

[14] *J. Švestka* (fn. 13) 459.

[15] *J. Švestka* (fn. 13) 458, 459.

[16] Supreme Court, 25 Cdo 1946/2000.

incurred in the form of lost profit.[17] Unfortunately, the Supreme Court again applied the previous conclusion in its later decisions.[18]

In conclusion, it can be accepted that in terms of causation, the chronological point of view between the cause and the wrongful result is not the deciding factor but always the factual relationship is; in that respect the chronological relationship helps to reason the factual causation. 30

(ii) Conclusion concerning the study's subject matter

The above-mentioned theoretical overview means for the purpose of the study, that if the logical chain of causes and results is not interrupted by a new element which was unforeseeable by the farmer producing GM organisms, the existence of the GM organisms should be the direct cause of the damage, either in the form of actual damage or lost profit (see below). However, the criterion of foreseeability might be very difficult in some cases, especially with respect to the fact that the GM organisms or products are not well examined, the research has been developing and new facts have been discovered. 31

It is therefore disputable whether anybody could for instance foresee a modification of non-GM crops in such a way that they become extremely dangerous to human health or to the environment. On the other hand, the contamination of non-GM crops should present, in our opinion, a foreseeable fact for the farmer. This conclusion should apply both to the commercial and non-commercial usage of GM organisms. In that respect the causality between the contamination of non-GM or organic products and the duties resulting from that as well as the consequential damage should be foreseeable to the farmers. The same applies with respect to the possible restriction of the access to the market. 32

(b) How is the burden of proof distributed?

As mentioned above, the basic condition for the establishment of liability is the existence of causality between the wrongful event or a breach of legal duties and the damage that has occurred. It is the duty of the injured party to prove the relevant circumstances. The only exemption from the duty to allege and prove the relevant circumstances of the case is fault that has been presumed under the current Civil Code. 33

[17] The Supreme Court argued in its reasoning that in the present case the logical chain of causes and results was not interrupted because the direct cause of the establishment of the lost profit was the fact that it was a direct result of the damaging of the item caused by the wrongdoer. No new fact had therefore entered into the chain of causes and results, but only a fact which had already been foreseeable for the wrongdoer before he caused the damage in question. The chronological point of view for the establishment of damage is not conclusive because it cannot be required that harm should arise immediately after the wrongdoer's action.

[18] Supreme Court, 25 Cdo 1354/2005, 25 Cdo 1355/2005.

34 Pursuant to consistent case law, the further examination of the case with respect to fault can be provided only if the causality between the wrongful event or breach of duty and the wrongful result is proved (R 47/84)[19]. But it is not only the duty to prove the relevant facts of the case which creates the duty to present the relevant facts. The injured party must present and give evidence of everything that could be relevant for the assessment of the case. In other words, it is the duty of the injured party to claim and prove all facts (burden of allegation and burden of proof).

35 To prove the existence of the causation between damage and breach of duties or legally qualified wrongful event, the causation must always be proved. In this respect, only the probability or expectation that a similar breach leads "beyond doubt" to damage is not sufficient. The same applies to cases of strict liability.[20] This approach may, of course, lead to the impossibility to prove the causality between damage and breach of duties or the legally qualified event.

36 However, this strict approach is maintained by the legal theory whereas the courts, which decide on the particular case, must consider all facts and allegations individually, and the court is entitled to evaluate all evidence brought freely and under its own consideration. As a result, each particular case might be assessed in a different way.

(c) How are problems of multiple causes handled by the regime?

37 The Czech law of delict does not explicitly establish the categories of multiple causes. Therefore, in each particular case it is necessary to examine all causes leading to the wrongful result and estimate each cause in regard to its relation to the wrongful result. The result of such an examination must be the discovery of the relevant cause, i.e. such a cause which inflicted the damage in question.[21] Especially in cases covered by this study, the wrongful event qualified by law is important due to the application of sec. 420a of the Civil Code.

38 There may be, of course, many causes and in such a case their particular contribution to the damage must be examined. Based on the principle of "*gradation of causation*", either all of these causes can be found relevant or, in accordance with the estimation, only causes inflicting the damage will be selected as relevant.

39 This approach complies with the application of the theory of adequacy, as under this theory the cause of a wrongful result is only a wrongful act or event if objectively foreseeable to any average person. In cases of multiple causes, the

[19] *J. Švestka* (fn. 13) 454.
[20] *M. Holub/J. Bičovský/M. Pokorný/J. Hochman/I. Kobliha, R. Ondruš*, Odpovědnost v občanském, obchodním, pracovním a správním právu (Liability for Damage in Civil, Com mercial, Labour and Administrative Law) (2003) 18.
[21] *J. Švestka* (fn. 13) 457.

issue of the foreseeability for an average person is a crucial one. Consequently, the court must evaluate this issue in a manner which questions whether the particular result was foreseeable or not for the wrongdoer based on objective criteria. The court must take into account all circumstances of the particular case and, if required, also an expert's opinions and valuations.[22]

The answer to this question must be that the Czech civil law does not include any special rules on alternative, potential or uncertain causation and the particular adjudication of that issue depends on the circumstances of the individual case, the allegation and the proof of the parties, and finally on the free consideration of the judge. Czech law offers only a general clause stating that anybody is liable for damage caused by the breach of a legal obligation. This provision means that a particular liable person must always be found. If there is no liable third party proven under the above-stated conditions, Czech law concludes that the damage in question must be borne solely by the injured party. This corresponds with the traditional principle *casus sentit dominus*. 40

The liability of multiple tortfeasors is currently regulated in sec. 438–441[23] of the Civil Code. Pursuant to sec. 438 of the Civil Code, if damage is caused by multiple tortfeasors they shall be held jointly and severally liable. This provision covers such situations when: (i) damage was caused in contributory fault, i.e. when each wrongdoer has a psychological relationship not only to his own act or omission but also to the activity of other persons, or (ii) a case of concurrent contribution, i.e. a case when only damage based on independent acts of wrongdoers occurs.[24] The contributory fault refers, however, not only to the concurrence of cases of liability based on fault but also to cases of the concurrence of liability based on fault and strict liability or to cases of strict liability. 41

The primary type of collective liability is, in accordance with sec. 438 (1) of the Civil Code, joint and several liability, i.e. the liability of one wrongdoer for the activity of other wrongdoers and all wrongdoers for the activity of each of 42

[22] However, the courts in similar cases adjudicate more on the question of unlawfulness which seems to be the crucial point of the case for Czech courts more than the question of fore seeability. If the unlawfulness of the act or event is considered positively, the issue of causal connection becomes subject to further court evaluation which should be recorded in the judg ment. However, in most cases the judgments are not very well developed in this regard and the courts mostly reason the causal connection by the existence of unlawfulness (e.g. 25 Cdo 1094/2001).

[23] Sec. 438: (i) If damage is caused by two or more persons they shall be liable for it jointly and severally. (ii) In warranted cases a court may rule that those who caused damage shall be held liable for it to the extent of their proportionate share of the damage.
Sec. 439: Any person who is jointly and severally liable with others for damage shall settle with these persons in proportion to their share of the damage that occurred.
Sec. 440: Whoever is liable for damage caused by another person has the right of recourse against such person.
Sec. 441: If the damage caused was also the fault of the injured person, he bears corresponding liability for the damage; if the damage was exclusively his own fault, he alone bears the liability (Original translation: *TradeLinks, s.r.o.*, Civil Code "Občanský zákoník" (2005)).

[24] *M. Holub/J. Bičovský/M. Pokorný/J. Hochman/I. Kobliha/R. Ondruš* (fn. 20) 85.

them,[25] whereas each of them is entitled to recourse if he compensates more than his share of the damage. The exception to this principle is several liability, i.e. the liability of the wrongdoer for a certain part of the damage which he individually caused. The application of this exception is, however, not obvious and must always be sufficiently reasoned in respect to the particulars of the case (R 80/1985).

2. Standard of Liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

43 Fault is a subjective criterion for the establishment of liability. The Czech theory of civil law determines fault as the psychological relationship of the liable party to their own act which is in breach of an objective law, i.e. to their wrongful act as well as to the result of the wrongful act.[26]

44 However, the wrongful activity of all GMO producers could be qualified pursuant to sec. 420a of the Civil Code, which sets out the liability for damage caused by an operational activity. Therefore, the fault, either in the form of negligence or of intent, does not play any important role (the exemption would be compensation based on provisions concerning the interference with real property rights).

45 But, if fault-based liability were decisive, the rules set out in the Act on GM or other statutes and legal provisions would be extremely relevant. The reason for this allegation is that fault-based liability requires a breach of legal duty and this duty would be represented by the legal rules set out in the relevant statutes. In that regard it might be disputable whether a breach of legal duty would always exist for instance in the case of the contamination of neighbouring lands, as the GM legislation accepts certain levels of contamination and lower levels of contamination would not present a breach of any legal duty!

46 For both parties to the delictual relationship, it is very important that the Czech Civil Code regulates fault as a presumed fact. The defendant-wrongdoer has to prove that he did not act with fault. However, the theory concludes that in this case only an unconscious negligence could be presumed. In fact this rule presents a reversal of the burden of proof for the benefit of the injured party.

[25] *J. Švestka* in: *M. Knappová/J. Švestka,* Občanské právo hmotné, vol. II. (Substantive Civil Law) (2nd ed. 1998) 366.
[26] *J. Švestka* (fn. 13) 461.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

(i) Requirements for establishing liability

The applicable strict liability regime pursuant to sec. 420a of the Civil Code, which sets out the liability for damage caused by an operational activity, is based on three conditions of liability: 47

- the existence of an event qualified by law,
- damage, and
- causality between the event and damage caused.

In accordance with the legal literature which provides for closer interpretation of the relevant section, the term "operational activity" should be primarily understood as meaning any activity which relates to the business activity (*předmět činnosti/podnikání*) of a legal entity or a natural person and which is stipulated either in its deed of foundation, business or trade licence etc. However, the term operational activity cannot be considered as only a business activity since it is not an identical term. Therefore, operational activity should be understood as every activity that is a part of the operation of the business and factual activity of the legal entity or the natural person.[27] It also plays no role whether it is necessary to obtain a public licence for it or not (typically a trade licence).[28] 48

(ii) Defences based on justification and release from liability

In general, the following cases of defence based on justification are acknowledged both by legal theory and case law: 49

- Fulfilment of legal obligations,
- Exercising of a subjective right (*neminem laedit qui iure suo utitur*); however, the exercise must not interfere with rights of third party without a legal reason and must not be in contradiction to "good morals",
- Self-help,
- Self-defence,
- Necessity,
- Approval of the injured party.

The provision of sec. 420a provides for reasons for release from liability in the case of damage caused under the conditions of that section if the wrongdoer 50

[27] Operations which are subject to special liability provisions are not subject to this provision, like motor vehicle liability (sec. 427 ff.), extremely dangerous operations (sec. 432) or operations connected with some items (sec. 433 ff.). But none of these cases of special liability relates to the GM products or organisms.

[28] *M. Pokorný/J. Salač* (fn. 10) 474.

proves that such damage was caused either by an unavoidable event not arising from the operation of a certain business, or by the injured person's own conduct.

51 In that respect, the interpretation and application of the term "unavoidable event" is extremely important with regard to the subject of this study. The unavoidable event is, in accordance with the doctrine, that such an event could not have been stopped even through exercising all possible care. These circumstances must be considered with respect to the particular conditions of the case; however, the objective point of view must also be taken into account.[29]

52 The contributory conduct of the injured party is covered by sec. 420a (3) when the conduct of the injured party may present a reason for release from liability arising under the conditions of sec. 420a of the Civil Code. However, the operator of the operational activity bears the burden of proof.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

53 Czech law provides for special rules applicable to cases of nuisance or similar neighbourhood issues. These cases are ranged under the Second Part of the Civil Code called Rights to Real Property, and the Civil Code provides for the regulation of the ownership rights to an item. To the same extent as the owner of an item, the holder of that item is also protected.

54 In particular, sec. 127 of the Civil Code provides for the special regulation of the interference with neighbours' rights. It states that the owner of an item must abstain from anything that would cause an unreasonable amount of annoyance to another person or seriously endanger the latter's ability to exercise his rights. The owner may not endanger his neighbour's buildings or plot of land by making alternations to his own plot of land or to any building erected on such land without having taken adequate measures in respect of the proper reinforcement of his building or other appropriate measures in respect of his plot of land. He may not vex his neighbours to an unreasonable extent by noise, dust, ash, smoke, gases, fumes, odours, solid or liquid waste, light, shadows and vibrations […].

55 Another crucial regulation is established in sec. 127 (3) of the Civil Code which constitutes the right of a neighbour with plots of land to get access to their plots of land, to the buildings standing upon them to the extent necessary, and, for the necessary period, for the required maintenance and management of the neighbour's plot of land and buildings. Where damage to a plot of land or building occurs, the person who caused the damage is obliged to compensate for it. Such a person cannot release himself from this liability.

[29] *J. Švestka* (fn. 13) 518.

Sec. 127 (3) of the Civil Code further provides that liability arising in connection with entry into the neighbouring land cannot be excluded. That means that such liability is a special case of strict liability which does not allow the application of the general provision of sec. 420 of the Civil Code. However, other cases of damage caused to ownership rights are subject to the general provisions of sec. 420 ff.[30] 56

The protection of the ownership right cannot be statute-barred. However, as the right to compensation is a monetary receivable, which must be regarded as a property right, it must also be subject to the termination period pursuant to sec. 106 of the Civil Code. Under this provision, the right to damages becomes statute-barred two years after the day on which the injured party became aware of the damage and of the identity of the liable party. The right to damages becomes statute-barred after three years at the latest. If the damage was caused intentionally, it is ten years from the day on which the event resulting in the damage occurred.[31] 57

These cases could also apply to cases covered by this study, as an immission to neighbouring land is a typical example of interference with property rights covered by the Second Part of the Civil Code. 58

3. Damage and Remedies

(a) How is damage defined and measured?

The term "damage" had already been established in Czech law by the Austrian ABGB, which was applicable in the former Czechoslovakia until 1950. The term *škoda* (damage) set out in sec. 1293 of the ABGB is understood to mean "any loss incurred to anybody, to his property, rights or his person". However, in accordance with the doctrine, it should have been applicable only to proprietary damage[32] and the expressions "damage to rights or person" did not concern the personality rights of persons but only the proprietary values of any receivable or other similar values.[33] The socialist legislator took over this theory during the preparation of both socialist Civil Codes from 1950 and 1964 so that when the latter Civil Code was substantially changed by the amendment dated 1991, the meaning and understanding of damage remained unchanged. 59

The concept of damage is not defined, in contrast to the regulation in the ABGB, by the current legislation in the Czech Republic. However, the case 60

[30] *J. Jehlička* in: *O. Jehlička/J. Švestka/M. Škárová and others*, Občanský zákoník komentář (Civil Code Commentary) (7th ed. 2002) 358, 359.

[31] Pursuant to sec. 398 in connection with sec. 397 of the Commercial Code, the subjective term for business relations amounts to 4 years and the objective, 10 years.

[32] *F. Rouček/J. Sedláček*, Komentář k československému obecnému zákoníku občanskému, vol. V (1937) 667 ff.

[33] *F. Rouček/J. Sedláček* (fn. 32) 663.

law in connection with the doctrine generally defines damage as "any loss of property which can objectively be calculated into an equivalent value, i.e. a monetary value."[34] Czech legislation uses the term "*škoda*" for the concept of damage to property.

61 Different from the term "damage", Czech law acknowledges also damage to the non-material sphere of the injured party for which the term "*(nehmotná) újma*" – (non-material) injury is usually used. However, contrary to the expression and the concept of damage, injury can become subject to damages (compensation, satisfaction) only in certain cases determined by law. The Civil Code sets forth rules for compensation for non-material harm in particular in sec. 13, 19a and 444 ff. of the Civil Code.[35]

62 Damage is divided into two categories[36]: actual damage (*damnum emergens*) and lost profit (*lucrum cesans*). Case law maintains the opinion that both kinds of damage are basically independent, and each of them can be suffered regardless of the existence of the other.

63 Actual damage can be defined as damage caused to property which can be assessed by calculating the reduction or devaluation of the existing property of the injured party (typically additional costs which must be expended as the result of the wrongful act of a third party or a devaluation of the property owned).

64 Lost profit is, in contrast to the previously mentioned damage, loss sustained as a result of the wrongful event which caused the property of the injured not to have increased in value, even though such an increase could have been expected under normal circumstances. An example could be the aggravation of the market position or a diminution of sales.

65 Focusing on the kinds of losses covered by this study, the third party may suffer both actual damage and lost profit. The particular specification of the damage sustained depends on the loss incurred. However, in accordance with the current case law, as both kinds of damage are independent of each other and both kinds are recoverable, the determination of the loss is not very relevant.

66 Concerning pure economic loss, Czech law does not explicitly acknowledge this kind of damage. However, pure economic loss could fall under the category of actual damage or the lost profit category if it is proved that such loss fulfils

[34] *M. Pokorný/J. Salač* (fn. 10) 466 ff.

[35] A specific case of harm is damage to health which presents damage to a non material sphere of the injured; however, such harm is in most cases accompanied by damage to property of the injured, for instance loss of earnings, loss of pension, costs of medical treatment etc. The Civil Code contains therefore special provisions set out in sec. 444 449a and uses for such kind of damage the term "*škoda na zdraví*" damage to health.

[36] Recently for instance the Supreme Court decision 25 Cdo 1307/2003.

the conditions set out by the case law and doctrine. It cannot be said in general what kind of damage pure economic loss is and whether it is recoverable, as this issue is very complex and also encompasses the issue of causation.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

As we have mentioned above, the liability of the farmer using the GM organisms and products should be considered pursuant to sec 420a of the Civil Code, i.e. as a case of strict liability regulated in the Civil Code. An inevitable condition for liability is the proof of the existence of the event qualified by law, the establishment of damage and causality between the provisional activity, in particular, the physical, chemical or biological impacts on the surroundings and the damage sustained. Such a fact can be proved only by proving the contamination. 67

In our opinion, proof of the existence of consumer fear of contamination of own products would not present a reason for damages, as this is not a sufficient cause for the lost profit suffered, as required under sec. 420a of the Civil Code. 68

Moreover, this consequence is very indirect and should not qualify as a foreseeable fact for the liable party. 69

(c) Where does your legal system draw the line between compensable and non compensable losses?

As a general rule applied by both the Civil and Commercial Code, the damage suffered must always be foreseeable by the wrongdoer. This could be the case when it comes to labelling the contaminated products or other obvious duties resulting from the existence of GM organisms. We assume that the person using GM organisms is familiar with the duties resulting therefrom. 70

Therefore, it should be concluded that such probable consequences are predictable and foreseeable for this person and present the line between compensable and non-compensable losses. 71

Such losses based on consumer fear which would however not be incurred in connection with the actual contamination should not be compensable. The reason is exactly the same as was mentioned under the answer to point b). Namely, the labelling of non-contaminated products or organisms is not a direct result of the biological impact of the activity of the GM farmer. 72

(d) What are the criteria for determining the amount of compensation in general?

(i) General criteria

73 Damage pursuant to sec. 442 of the Civil Code is always recoverable, either in money or in restitution in kind, if the injured party so demands and if it is possible and expedient.

74 As mentioned above, the recoverable damage is either the actual damage or the lost profit. This fact determines the amount of compensation. It is the obligation of the injured party to prove the amount of damage suffered. Concerning the amount of compensation, Czech law acknowledges full compensation, i.e. that the injured party shall be entitled to receive full compensation for the damage suffered.

75 In accordance with the decisions, the actual damage is harm caused to property, which consists of destruction, loss, reduction or other devaluation of the existing property of the injured party.[37] Therefore, the answer to the question concerning the extent of the compensation must be that only the depreciation of the products would be compensable as only this represents the actual damage. Such damage is typically subject to an expert's appraisal and valuation; however, if the injured party is able to calculate the damage suffered precisely enough such evidence could be found sufficient.

76 The actual damage is represented by the costs actually expended by the injured party. However, case law acknowledges that actual damage is also represented by expenditures which are to be expended in the future to restore the previous state or to restrain all disadvantages resulting from the fact that restitution in kind was not provided (R 25/90).[38] The injured party must always prove the actual damage. However, in exceptional cases when the damage could be determined only with obstacles or the determination is absolutely impossible, the relevant court may use its discretion and determine the damage pursuant to its free consideration (sec. 136 of Act No. 99/1963 Coll., Civil Procedure Code).

77 For relationships among business entities as described above, damage shall be assessed and calculated pursuant to provisions of the Commercial Code. In the Commercial Code, damage is divided into the same categories however, two important differences can be found: (i) the regulation of the Commercial Code is not of mandatory nature and can be altered by consent of the parties (i.e. some part of damage can be excluded for compensation or the principles of the compensation can be changed), (ii) pursuant to sec. 380, costs incurred by the injured party in connection with the breach of duties of the liable party also qualify as damage.

[37] *J. Švestka* (fn. 13) 447.
[38] *J. Švestka* (fn. 13) 447.

There is a case commented on by the Supreme Court (S IV, p. 628)[39] whose merits are very similar to the subject of this study. The Supreme Court included this case in its commentary on damage cases, and it confirmed the following qualification: *a change of the value of a vineyard caused by the fertilisation of neighbouring lands which resulted in the low productivity of the vineyard, presents an actual damage.* 78

In accordance with the definition of lost profit provided above, the profit must not only be hypothetical, but it must be reasonably expected with respect to the usual circumstances. Therefore, in every case the court must consider all circumstances of the current case and finally decide on the nature of the damage. However, the Commercial Code provides, in sec. 381, that instead of the profit actually lost, the injured party may demand compensation based on the profit attained as a rule in fair business dealings in the injured party's line of business, under the conditions similar to those in the breached contract. 79

The doctrine proposes, in a case relating to the Civil Code, the application of the principles set out in the Commercial Code when calculating lost profit. Pursuant to sec. 379 of the Commercial Code, lost profit is damage which could have been envisaged, taking into account the facts of which the wrongdoer was or should have been aware of if he had taken all due care. The Supreme Court concluded in its decision II Odon 15/96 that the lost profit must always be determined in a way that the probable amount, which under usual consideration is equal to certainty, is to be discovered.[40] 80

(ii) Contractual arrangements concerning the kind and scope of damage

Concerning the amount of compensation, the Civil Code prohibits, in sec. 574, any agreement under which someone waives his rights which can only arise in the future. Also, the provisions of the Civil Code concerning the kind and scope of damages are deemed mandatory so that the parties cannot modify the extent and amount of compensation in advance. 81

The Commercial Code contains a similar provision in sec. 386, which is a special provision to sec. 574 of the Civil Code for business relations and which prohibits a waiver of claims for damages until the relevant duty is breached. Despite the mentioned wording, the legal doctrine deduces that a limitation of damages in business relations is possible: however, the compensation cannot be excluded in full.[41] Another point is that the provisions of the Commercial Code concerning the kind and scope of damages are not mandatory so the parties could alter the compensable kinds of damages. 82

The most favoured type of contractual arrangement is a contractual penalty set forth in the Civil Code in sec. 544 ff., which enables a lump sum compensation 83

[39] *M. Pokorný/J. Salač* (fn. 10) 519.
[40] Právní rozhledy 4/1996.
[41] For instance *J. Šilhán*, Contractual Limitation of Compensation for Damage in Commercial Law, PR 2005, 845 ff.

if one party breaches its contractual obligations. If a contractual penalty is concluded, the party breaching its obligation is bound to pay it even if the entitled party did not sustain any damage. Concerning the amount of compensation, the entitled party shall have no right to claim damages caused by a breach of the obligation to which the contractual penalty relates, unless agreed otherwise. Moreover, the entitled party may claim damages in excess of the amount of the contractual penalty only if agreed.

84 The Commercial Code contains, in sec. 300 ff., only a few provisions amending the above-mentioned provisions. However, it enables the court to reduce the amount of the contractual penalty.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

85 There is no financial limit with regard to the liability for GM organisms and products. However, the Civil Code includes, in sec. 450, a reduction clause. This clause includes the discretionary power of a judge to reduce damages in favour of the wrongdoer. This provision is set out in sec. 450 of the Civil Code and under this rule the judge shall consider the proprietary situation of both parties to find out if reasons which merit special consideration exist. When such a situation allows the reduction in favour of the defendant-wrongdoer, the judge shall reduce damages.

86 The discretionary power of the court shall be applied under the following conditions. The main condition for the application of the reduction clause is the existence of reasons which merit special consideration. In addition, the wrongdoer must not have acted intentionally. The wrongdoer may therefore have acted only in negligence, but it is irrelevant whether the negligence can be qualified as being either conscious or unconscious.

87 Certain limits apply to the amount of damages granted especially in cases of non-pecuniary injuries. Under Decree No. 440/2001 Coll., on Compensation for Pain and Suffering and for Aggravation of Social Position, both categories, i.e. compensation for pain and suffering and for aggravation of social position are compensated by a lump sum and the amount is determined by the court pursuant to a points scale laid down by the Decree.

88 The whole system of compensation for physical injury and aggravated social position is based on a system of classifying each injury on a point scale basis. Within this system, injuries are considered on an objective basis and are measured with reference to a point scale system whereby every point is equivalent to 120 Czech Crowns (€ 4).[42] The judge should apply this schedule to the particular case (the value is determined by a physician). Even in exceptional cases, special circumstances of the particular case can be taken into account,

[42] Sec. 7 subs. 2 of Decree No. 440/2001 Coll.

and hereafter the judge may use his discretionary power to increase the amount of compensation payable.[43] The Decree allows a small, "reasonable" variation from the set amount and the judge must always reason his decision.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

Neither the Act on GM, the Act on Agriculture nor other laws establish a duty to take out liability insurance or to provide for other advance cover for potential liability. However, it is still possible for the persons working with GM organisms to take out an insurance policy offered by commercial insurance companies. 89

(g) Which procedures apply to obtain redress in such cases?

Given the previous answer, this question cannot be answered. 90

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

There are no general compensation schemes that would be applicable in cases covered by this study other than the general liability provisions of the Czech Civil Code. 91

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

The Act on GM includes certain provisions on the duty to monitor the GM organisms and products. In particular, in sec. 18, 23 and 24. Sec. 2 lett. h) provides for the definition of monitoring, which is defined as the identification of the presence of a genetic modification in an organism or a product and observation of the impact of the genetically modified organism or genetic product on the health of human beings and animals, the environmental components and biological diversity. 92

Pursuant to sec. 18 (9), the person who was granted consent for its introduction into the environment shall ensure that the monitoring and reporting of the results thereof are carried out in accordance with the requirements laid down in the consent. Sec. 23 and 24 of the Act on GM provide then for the further duty to monitor and specify this obligation with respect to the actual introduction of GMOs into the environment. 93

[43] Sec. 7 subs. 3 of Decree No. 440/2001 Coll.

94 Pursuant to sec. 2i of the Act on Agriculture, the producer of genetically modified species is obliged to inform its neighbouring farmers and the Ministry of Agriculture about fields with GM crops as well as preserve the information on the GMO and keep to the minimal distance between GM and non-GM species.

95 However, no provision specifies conditions for bearing the costs of the monitoring which is an inevitable condition for introducing the GM organisms into the environment. Therefore, it seems to be the fact that all these costs must be paid by the person listed in the Register of Users in accordance with the Act on GM.

96 The Act on GM further provides in sec. 34 for provisions concerning corrective measures if the Czech Environmental Inspection discovers that GM organisms or products are managed in contravention of the Act on GM or relevant decisions. In this case, the landowner can also become subject to restrictions. However, in all cases the person whose activity was the cause for such corrective measures shall bear the costs of the corrective measures. If no person is found the state shall pay the costs. The corrective measures should cover all breaches of the Act on GM, i.e. the breach of duty to monitor could also become subject to the measure.

97 Also in accordance with the Act on Agriculture, the producer can become the subject of sanctions when it does not comply with duties set by the law. However, the Act on Agriculture allows only a financial fine up to the amount of 500,000 Czech Crowns (€ 21,000).

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply (and if so, who would have to bear these costs)?

98 We have contacted the Ministry of Environment and the Ministry of Agriculture, which are the relevant governmental bodies for GM issues. The Departments confirmed to us that for GM organisms there are no further specific rules applicable to the sampling and testing costs. In other words, all costs combined with the sampling and testing must be borne by the person who uses the GM organisms in accordance with the Act on GM and eventually by the state.

99 In business relations, the contractual parties may conclude certain rules concerning the sampling and testing for GMO presence. These rules, however, are not applicable in general and cannot be mentioned as a typical example of business based rules.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

100 The Act on GM provides that in cases when the Czech Environmental Inspection takes corrective measures, these costs shall be borne by the liable party. If

the Czech Environmental Inspection takes corrective measures and there is no reason for such an action, the state must be held liable for a wrongful decision pursuant to the State Liability Act[44] and consequently, the state shall bear the costs incurred or reimburse the damage caused.

However, there are no further provisions for bearing the costs of sampling and testing. 101

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no special jurisdictional or conflict of laws rules that apply to harm caused by GM products or organisms. Consequently, general provisions of Act No. 97/1963 Coll., on private international law and procedure law ("IPL") would apply. However, an important fact must be mentioned: the former Czechoslovakia concluded many bilateral treaties with other socialist countries[45] which are still valid and effective and which, pursuant to sec. 2 of the IPL shall take precedence over the general rules of the IPL, i.e. also the provisions of sec. 15 of the IPL. These bilateral treaties include the specific rules also for the liability issue. 102

2. General rules of jurisdiction and choice of law

The rules of the IPL differentiate between damage caused as a result of a breach of a contractual or other relationships and damage caused as result of another fact. 103

As the contractual relationship will not be relevant in cases of damage caused by GM organisms and products, we will further deal with the issue of delictually (extra-contractually) caused damage. Pursuant to sec. 15 of the IPL, "*claims to damages which do not result from breach of legal duties based on contracts or other legal actions shall be governed by the laws of the place where the damage occurred or of the place where a fact establishing the claim for damages came from*". 104

This provision covers cases of damage caused either by breach of a legal duty resulting from generally binding legal provisions or damage arising from strict liability.[46] 105

[44] Act No. 82/1998 Coll., on Liability for Damage Based Either on Misadministration or on Il legal Decisions and on Changes in the Act No. 358/1992 Coll., on Notaries and Their Activity (Notary Order).

[45] Albania, Bulgaria, Hungary, Cuba, North Korea, Poland, Yugoslavia, Soviet Union etc.

[46] *Z. Kučera*, Mezinárodní právo soukromé (Conflict of Laws) (5th ed. 2001) 307. Damage caused in a road accident is not subject to this provision, as these cases are subject to international regu lation based on international treaties, and also damage within a labour law relationship, which is subject to the special regulation of labour relations within the IPL. However, both these areas are not very relevant for the topic of this study.

106 The Czech regulation of the determination of a legal order applicable to the extra-contractual relationship (*lex loci delicti*) is based on an alternative application: either the laws of the place of the damage's occurrence or the place where a fact establishing the claim for damages arose. However, different from some legal orders on the application of the particular legal order, the parties to the extra-contractual relationship shall not decide, but the relevant court will. In other words, Czech law does not allow the choice of law in extra-contractual relations.

107 Pursuant to legal theory,[47] a rule for the determination states that the court should select the most important legal order for the particular relationship. In other words, the relationship established by the delictually caused damage should become the subject of the legal order that relates to it in the closest way. The Czech Supreme Court decided in a very recent case on cross-border relations that in cases of damage to health and the consequential claim of the Health Insurance Company against the wrongdoer, the law of the place where the damage occurred must govern such a relationship.[48]

108 It is therefore very problematic to say how the Czech court would decide a case of damage caused by GM organisms or products. In our opinion, the damage caused by GM organisms and products could be divided into two groups in relation to the potential cause of the damage. Examples are damage to organisms growing in another state or damage suffered by non-GM farmers in the form of additional costs, e.g. for labelling.

109 In our opinion, in the first case the *lex loci delicti* should be found in the neighbouring state, as the contamination of the non-GM organisms by organisms from another state occurred in this particular state. Moreover, the damage arises independently of the will of the farmer using GM organisms. Based on this fact, we are of the opinion that the closest relationship exists with regard to the place of the damage's occurrence. Concerning the other case of damage, the additional costs are an indirect result of the crops' contamination and therefore also the place of the damage's occurrence should be found relevant with regard to the applicable law.

[47] *Z. Kučera* (fn. 46) 308.
[48] Supreme Court, 25 Cdo 2881/2004.

Economic Loss Caused by GMOs in Denmark*

Vibe Ulfbeck

I. Special liability or compensation regimes

1. Introduction

In Danish law, a special compensatory regime is in force. This was introduced by the Act on the Growing etc. of Genetically Modified Crops[1] (the Co-existence Act). In addition, an Executive Order on Compensation for Losses due to Certain Occurrences of Genetically Modified Material was issued[2] (Executive Order on Compensation). According to § 1 of the Co-existence Act, it is applicable to commercial cultivation, handling, sale and transport of genetically modified crops. The system is not a liability regime. It is meant to work by way of a compensation fund. The compensation fund is financed by the state and the GMO cultivators. The system covers economic loss resulting from actual GMO presence in non-GM crops. The person suffering damage is entitled to compensation if he can prove the existence of a loss caused under specific circumstances described in the Co-existence Act and in the Executive Order on Compensation. Compensation will be paid by the Plant Directorate (the state) provided the injured party fulfils the requirements. The state is entitled to a recourse action against the GMO cultivator. The system will be explained in more detail below. As of now, cultivation by means of GMOs requires permission from the Plant Directorate[3] and cultivation has not been practiced on a large scale in Denmark.[4] Consequently, there is no case law that can illustrate the interpretation of the rules. 1

* This report does not take into consideration materials published after July 1, 2006.

1 Act no. 436 of 9th June, 2004 (see infra Annex 674 ff.). The Act entered into force on 9. 4. and 17. 12. 2005, see Executive Order no. 224 of 31. 3. 2005 and Executive Order no. 1178 of 17. 12. 2005.

2 Executive Order no. 1170 of 7. 12. 2005. The Executive Order entered into force on the 17. 12. 2005.

3 See Executive Order no. 220 of 31. 3. 2005 on Cultivation of Genetically Modified Crops (Ex ecutive Order on Cultivation of GM Crops) § 1, sec. 1.

4 According to the Plant Directorate, only one permission had been granted by June 2006.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

2 According to § 9 of the Co-existence Act, compensation for loss due to the presence of genetically modified material is awarded if (1) in the same cultivation season within a certain area[5] a genetically modified crop of the same kind or a kind which is next of kin has been cultivated and it can be crossed in with the crops of the injured party, (2) genetically modified crops above a certain level[6] can be identified in the crops belonging to the injured party. As is clear from the wording of the rule, there is no specific requirement for proof of causation. A certain geographic closeness between the crops of the injured party and the genetically modified crops suffices, provided the genetically modified crops can be identified in the crops of the injured party. As regards ecologically cultivated crops, the Co-existence Act contains a special provision in § 9, subsection 4 making it even easier to obtain compensation. According to this rule, compensation will be paid regardless of whether the requirements in § 9, subsection 1, no. (1) and (2) are fulfilled. If the injured party is authorized as an ecological farmer, the presence of GMO seeds in his seed corn is sufficient to trigger compensation.

(b) How is the burden of proof distributed?

3 There is no provision as to the burden of proof in relation to the above described rules. Judging from the wording ("if"), it must be assumed that the injured party must prove that the requirements stated in § 9, subsection 1, no. (1) and (2) are fulfilled. If the injured party has lifted the burden of proof in this respect, there seems to be an irrebuttable presumption of causation. Thus, no rule allows for the cultivator of the genetically modified crops to produce counterevidence. In this sense, different sources of adventitious presence of GMOs are not being taken into account.

(c) How are problems of multiple causes handled by the regime?

4 Problems of multiple causes are not specifically dealt with by the regime. There are no rules on alternative, potential or uncertain causation. The loss ("liability") is channelled to the compensation fund. The compensation fund can have a recourse action against the GMO cultivator, see below under 5 (Compensation funds).

[5] Appendix 1 to the Act contains the geographical requirements in this respect.
[6] According to the Executive Order on Compensation, the existence of GMOs must exceed a threshold of 0.9%.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

5 The regime is not a liability regime but is meant to function by means of state funding. Compensation is paid by the state to the injured party regardless of whether the GMO cultivator has acted negligently or not. The only requirement is that the injured party can prove that GMOs above a certain level can be detected in his crop and that the geographic requirements in § 9 of the Co-existence Act are fulfilled, see above under 2 (Causation). However, although the system is not a liability system, a defence based on negligence on the part of the injured party is still open to the state. Thus, according to § 9, subsection 5, compensation can be reduced or denied if the injured party negligently or wilfully has contributed to causing the damage or if his acts have reduced the possibilities for the state to succeed in a recourse action against the GMO cultivator. According to the preparatory work on the Act,[7] the injured party may have negligently or wilfully contributed to causing the damage if he has used the tools of a GMO cultivator or if he has not used GMO-free outseed. He may have reduced the possibilities for the state to succeed in a recourse action if he has waived his right to claim damages from the GMO cultivator or if he has entered into an agreement as to the geographical requirements in the Act.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

6 According to § 1 of the Co-existence Act, the Act is applicable to genetically modified crops. In § 2, genetically modified crops are defined as crops, including seeds and vegetative reproduction material. Thus, in general the same criteria apply with regard to crop production and seed production although different contamination thresholds may apply in regard to crop and seed production. However, according to § 7 of the Executive Order on Cultivation of GM Crops, the sale of vegetative reproduction material and seed for commercial purposes must only take place to persons who are authorized.

[7] Lovforslag (bill)169 (2003) per § 7.

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

7 The compensatory regime is not exclusive. There are no rules in the Act requiring the injured party to proceed by way of claiming compensation under the Act rather than suing the GMO cultivator under general rules of tort law. However, if the injured party chooses to sue the GMO cultivator under general tort law and obtains damages, § 11, subsection 2 of the Executive Order on Compensation applies. According to this rule, the state can "under the circumstances" refuse to pay compensation if the GMO cultivator has paid damages. In the preparatory work, the rule is understood as excluding the injured party from compensation in this case.[8] The compensatory system can also work as a supplement to the general rules of tort law. Thus, according to § 11 of the Co-existence Act, the injured party retains his right to claim compensation from the GMO cultivator for losses not covered by the compensation paid by the state.

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

8 Loss which entitles the injured party to compensation under the Co-existence Act is defined in § 9, subsection 3. According to this rule, the injured party can claim compensation for three different types of losses. Firstly, compensation can be claimed for the reduction in the sales price which is a consequence of the presence of genetic material in the crop. Secondly, compensation can be claimed for expenses in relation to taking samples and making analyses. Thirdly, compensation can be claimed to cover expenses in relation to re-establishing ecological areas because of the presence of genetically modified material.

9 As regards compensation for the reduction in price, the preparatory work contains the following observations[9]: If the admixture is detected *before* the sale, the price reduction will be measured as the difference between the market price of crops with no admixture and the market price of crops with admixture. If the crop has not yet been sold at the time when compensation is sought, the market price will be determined as the market price at the time of the application for compensation under the compensatory system. If the crop has been sold at this stage and the admixture has been taken into account when setting the price, the actual loss will be measured as the actual price reduction at the time of the sale, provided the achieved price is in accordance with market prices at the time of sale. If the admixture is detected *after* the sale, the compensation payable will amount to the sum which the injured party must pay to his purchaser as a reduction in price. In this case, the injured party is only entitled to compensation if he actually repays his purchaser the sum.

[8] Bill 169 (2003) per § 7.
[9] Bill 169 (2003) per § 7.

As regards expenses in relation to taking samples and making analyses, these expenses can be claimed under the compensatory system. Initially however, the person claiming compensation under the system is obliged to cover the costs, see below under III 3 (Sampling and testing costs). 10

As regards loss due to the need for re-establishing ecological areas, the rule relates to the cases in which the injured party, according to the rules under the Ecology Act,[10] is obliged to re-establish the area and cultivate ecologically for a certain period of time before the products can be sold as ecological products again. In these cases, compensation can be claimed for expenses incurred in connection with the re-establishment of the area. Compensation to cover loss of subsidies for that period of time can also be claimed. 11

The compensation payable is limited to these three categories of losses. The injured party cannot claim compensation under the Act for further direct or indirect losses, for instance losses suffered by the injured party because he has become liable towards contracting parties. 12

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

According to § 9, subsection 3, no. (2) of the Co-existence Act, proof of actual admixture is a requirement under the Act. A farmer who suffers loss because his customers only fear that his products are no longer GMO-free must claim damages under the general rules of tort law, see below under II. 13

(c) Where does the scheme draw the line between compensable and non compensable losses?

See the answer to question (b). 14

(d) What are the criteria for determining the amount of compensation?

See the answer to question (a) 15

(e) Is there a financial limit to liability?

There is no financial limit to liability.[11] However, the rules in § 9, subsection 3 of the Co-existence Act described above under (a) limit liability as no losses other than the ones mentioned there can be compensated under the Act. 16

[10] Act no. 118 of 3. 3. 1999.

[11] The bill originally contained a rule authorizing the minister to set a financial limit, see bill 169 (2003) per § 7, section 3.

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

17 As of yet there are no insurance requirements but the GMO cultivator is obliged to contribute to the financing of the funding system, see below under 5 (Compensation funds).[12]

(g) Which procedures apply to obtain redress?

18 According to § 10, the injured party must notify the Plant Directorate of his claim in order to obtain redress. Notification must be given without unnecessary delay after the injured party has become aware or ought to have become aware of the admixture of GMOs.[13] If the injured party fails to comply with this rule, he loses his right to compensation. The right to obtain compensation is also lost if the injured party has not notified the Plant Directorate of the claim by the 1st of August in the year after the crop has been harvested. It follows from § 13, subsection 1 of the Executive Order on Compensation that decisions taken by the Plant Directorate cannot be appealed within the administrative system. However, according to § 16, subsection 2, decisions on compensation taken by the Minister can be brought before the ordinary courts. A request to this effect must be sent to the Plant Directorate within 4 weeks after the decision has been taken. The case is then brought before the courts by the Plant Directorate.

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

19 According to § 13, subsection 1 of the Co-existence Act, the Minister of Victuals, Agriculture and Fishing can grant injunctive relief either before or after admixture has occurred.

5. Compensation funds

(a) Are there any compensation funds?

20 The compensation system in the Act is based on the idea of a fund to pay compensation.

[12] In connection with the evaluation of the system it will be considered whether this could be changed into an insurance system, see bill 169 (2003) per § 10.

[13] According to § 4, section 2 of the Executive Order on Compensation, notifications which are received later than two weeks after the injured party became aware or ought to have become aware of the GMO admix will normally be considered too late.

(b) How are these funds financed?

The fund is financed by the state, by contributions from GMO cultivators and by the means obtained from recourse actions. According to § 9, compensation is paid out of means reserved for this purpose in the state budget. According to § 12, the GMO cultivators also contribute to the fund. Thus, on an annual basis, a GMO cultivator is required to pay 100 d.kr. (i.e. approx. 13 Euro) per hectare of land which has been cultivated with GMOs. It is expected that the payments from the GMO cultivators will gradually rise as GMO cultivating becomes more common. In the preparatory work to the Act it is expected that the payments from the GMO cultivators will cover more than 50% of the compensation claims in 2007.[14] 21

(c) Is there any contribution granted by the national or regional authorities?

See above under (b) 22

(d) Is the contribution to the fund mandatory or voluntary?

The contribution is mandatory, cf. § 12 of the Co-existence Act. 23

(e) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

There are no specific plans to make changes to the amounts payable by the GMO cultivators who make contributions to the fund, but according to the preparatory work the entire system established by the Act is to be evaluated two years after the Act has entered into force, i.e. 2007.[15] 24

(f) How are the funds operated?

According to § 1 of the Executive Order on Compensation, the Plant Directorate manages the fund and decides which claims are justified. The injured party must notify the Plant Directorate of the claim, see above under 4 (g). The injured party must provide the Plant Directorate with further information, specified in § 5 no later than four weeks after the notification. According to § 7, the Plant Directorate hereafter takes a sample from the crops belonging to the injured party. The sample is then examined by the Plant Directorate. 25

(g) Are there any provisions for recourse against those responsible for the actual cause of the loss?

According to § 11 of the Co-existence Act and § 12 of the Executive Order on Compensation, the Plant Directorate is entitled to a recourse action against the 26

[14] Bill 169 (2003) section 4.
[15] See bill 169 (2003) appendix 56, section 3.

GMO cultivator. Recourse is allowed to the extent that compensation has been paid, provided the GMO cultivator would have been liable towards the injured party under the general rules of tort law, see below under II.

6. Comparison to other specific liability or compensation regimes

27 The described compensation regime is comparable to four other compensation regimes in Danish law. However, the other regimes concern cases of personal injury. Only two of the systems are state financed. The two others are based on insurance systems.

28 According to the Act on victims of crimes (*voldsofferloven*),[16] a victim of a crime who has suffered personal injury is entitled to damages from the state. The claim is measured in the same way as ordinary personal injury claims and the amount of damages payable can be reduced if the victim has contributed to the injury. It is a condition for obtaining damages that the crime is reported to the police without unnecessary delay and that the victim claims damages from the offender if criminal proceedings are instigated. However, damages are payable by the state regardless of whether the offender is unknown, cannot be found, is under the age of 15 or is insane.

29 Another state financed system is the one found in the Act on damage caused by medicaments (*lægemiddelskadeloven*).[17] According to this Act, a patient who suffers injuries in the sense of side effects of medicaments that go beyond what the patient should reasonably accept is entitled to damages paid by the state. The state has a recourse action against the manufacturer if he is liable according to the general rules of tort law or the rules of product liability.

30 In addition to the described systems, Danish law has two insurance-based compensatory systems. According to the Act on patient insurance[18] (*patientforsikringsloven*), a patient who suffers personal injury in connection with treatment in hospital or treatment at a private clinic is, under certain conditions, entitled to damages. The damages are paid by the person or authority who is responsible for running the hospital or the clinic. This person must be insured unless it is a public authority in which case it is regarded as "self-insured". If the injured party is entitled to damages under the Act, he is not allowed to claim under general tort law for the same loss, cf. the Act § 7. Since the Act covers virtually all losses, the loss is in reality fully canalised to the insurance companies.

31 In that respect, the system under the Industrial Compensation Act[19] (*arbejdsskadesikringsloven*) is slightly different. Under this Act, workers who are

[16] Act no. 470 of 1. 11. 1985 as amended.
[17] Act no. 1120 of 20. 12. 1995 as amended.
[18] Act no. 228 of 24. 3. 1997 as amended.
[19] Act no. 422 of 10. 6. 2003 as amended.

injured during work are entitled to damages under certain conditions. The system is based on mandatory liability insurance. The damages paid are financed by the insurance premiums paid by the employers. However, only certain types of losses are covered by the Act. Losses that are not covered can be claimed by the injured party from the employer under general tort law rules, cf. the Act § 77.

Thus, apart from the fact that the compensation system in relation to GMO cultivation does not deal with personal injuries, the GMO compensation system fits into a broader compensatory system in Danish law. 32

II. General liability or other compensation schemes

1. Introduction

The above-described special compensation regime in relation to GMO cultivation does not rule out the application of various liability systems as supplemental or alternatives to the special regime. Four different liability systems could be considered: (1) the Environmental Liability Act,[20] (2) special rules on strict liability as developed in court practice, (3) the ordinary negligence rule, (4) special rules on neighbourhood conflicts. 33

As regards the Environmental Liability Act, the polluter is liable on a no-fault basis, cf. § 3, subsection 1. The Act applies to damage caused by the pollution of air, water, soil or the underground by certain kinds of commercial or public activities, cf. § 1, subsection 1 of the Act. Although the concept of pollution is interpreted broadly, it could be argued that GMO cultivation causes damage to crops and not to air, water, soil or the underground. However, even though it cannot be ruled out that admixture of GMOs in the soil would be regarded as pollution of the soil, the Environmental Liability Act would still not be applicable. Thus, the appendix to the Act contains a list of enterprises that can be held liable under the Act. Only enterprises which are on the list can be held liable. Enterprises which are under a duty to apply for authorization for production by means of GMOs according to the Act on Environment and Gentechnology[21] (the Gentechnology Act) are listed, cf. J2. However, the term "production" in the Gentechnology Act does not seem to cover agricultural cultivation.[22] Accordingly, GMO farmers are not covered by this provision on the list. It could be considered whether GMO farmers could fall into a different category on the list. Thus, also buildings with a certain capacity for holding effluent animal manure are listed, cf. I1. However, if liability is to be imposed it is a further requirement that the damage is caused by the aspects of the enterprise which are the reason for the listing of the enterprise. When buildings with a certain 34

[20] Act no. 552 of 24. 6. 1994 as amended.
[21] Act no. 981 of 3. 12. 2002 as amended.
[22] The preparatory work to the Gentechnology Act mentions production in laboratories and the like as covered, see bill 117 (1990) per § 7 and 8.

capacity for holding effluent animal manure are listed, this is due to the size of the capacity for holding the manure. It is not the purpose of the rule to grant protection from consequences of the application of GMOs. Consequently, pollution caused by GMO agriculture does not fall into this category either. Therefore, it must be assumed that the GMO cultivator cannot be held strictly liable under the Environmental Liability Act.

35 As regards the special rules on strict liability as developed in court practice, the area of applicability of these rules is quite narrowly defined.[23] Notably, there is no doctrine of strict liability for dangerous activities in Danish law. Thus, strict liability has been imposed in some cases where excavation and/or pile work in connection with construction work has caused neighbouring buildings to develop cracks in the walls or other kinds of damage. The leading case is U 1968.84 H.[24] Strict liability was imposed on the owner of the building being erected. The reason given for this was that he, being the owner, while planning and budgeting the project had had the opportunity to take into consideration the risk of this type of damage. Although the justification for imposing strict liability on the face of it seems applicable in a wide range of situations, the rule of strict liability has in fact been confined to two areas of the law. Thus, firstly strict liability applies to cases like U 1968.84 H in which big excavations, pile works and similar works are being carried out and lead to considerable damage. Secondly, the rule of strict liability has been applied to cases concerning leakages of supply lines. In general, the courts are hesitant to establish strict liability in new areas of the law. Consequently, it is unlikely that the courts will introduce strict liability for GMO cultivation in Danish law on the basis of (an analogy from) the above-described doctrines.

36 It must therefore be assumed that liability will be based on the ordinary rule of negligence or the special rules relating to neighbourhood conflicts concerning cases where lasting inconveniences are caused. The application of these rules in relation to GMO cultivation will be described in more detail in the following.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

37 In Danish law, the general rule in relation to causation is described as the *con ditio sine qua non* rule.[25] This means that as a starting point the GMO cultivator will only be liable if damage to the crops would not have occurred had it not been for the acts of the GMO cultivator.

[23] See *B. von Eyben/H. Isager*, Lærebog i erstatningsret (5th ed. 2003) 134 ff.
[24] UfR (*Ugeskrift for Retsvæsen*, Weekly Law Reports) 1968, 84, H (*Højesteret*, Supreme Court).
[25] *Von Eyben/Isager* (supra fn. 23) 217 218.

(b) How is the burden of proof distributed?

As a starting point, the burden of proof is on the injured party. This means that the owner of the damaged crop must prove that the damage has been caused by the GMO cultivator. In general, it is not sufficient for the injured party to prove his case with a likelihood of more than 51 percent. The likelihood must be greater than this.[26] However, sometimes the burden of proof can be milded. In particular, this is the case if the tortfeasor has acted grossly negligently or clearly negligently. In court practice, the requirement of proof of causation has been relaxed in cases like this.[27] Thus, if it can be categorized as a clear mistake on the part of the GMO cultivator that he has failed to apply proper segregation measures, the injured party will presumably stand a better chance of proving a causal link between the damage to his crops and the GMO cultivation. Similarly, the requirement of proof can be relaxed if the tortfeasor has violated statutory rules of conduct in the particular area.[28] There are no general rules as to the question of whether there should be a reversed burden of proof. It is up to the courts to decide whether the burden of proof should be reversed in the specific case. Thus, a reversed burden of proof cannot be ruled out in cases of damage allegedly caused by GMO cultivation. 38

(c) How are problems of multiple causes handled by the general regime?

When damage is caused by multiple tortfeasors, the tortfeasors are jointly and severally liable. This is also the rule in the case of damage inflicted by several successive acts.[29] This means that if a crop contains admixture from two different GMO cultivators and each admixture would in itself have rendered the crop unsaleable, the GMO cultivators are jointly and severally liable. 39

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

In the case of fault-based liability, the main parameter for determining fault is to question whether the tortfeasor has acted in a way that differs from recognized standards of behaviour in the specific context.[30] Thus, the focus is not so much on the psychological experience of the tortfeasor as on objective standards. If the area of the law is regulated by statutory rules defining the required conduct, these rules may be decisive for determining the question of fault. As a general rule, the burden of proof is on the injured party. He must prove that 40

[26] *Von Eyben/Isager* (supra fn. 23) 221.
[27] See U 2000.521 H, U 1989.353 Ø and U 2002.2000 H.
[28] In a sense, this rule is a variant of the rule described above on acts by the tortfeasor that are clearly negligent, see *von Eyben/Isager* (supra fn. 23).
[29] *Von Eyben/Isager* (supra fn. 23) 239, *A. Vinding Kruse*, Erstatningsret (5th ed. 1989) 146 ff. *T. Iversen*, Erstatningsberegning i kontraktsforhold (2000) 820.
[30] *Von Eyben/Isager* (supra fn. 23) 62.

the tortfeasor has acted negligently. However, if statutory rules lay down rules on the required conduct and these rules have been violated, the burden of proof will often be reversed. In these cases, the tortfeasor will be liable unless he can prove that in spite of the violation of the statutory rules he has not acted negligently.[31] As to GMO cultivation, the Executive Order on Cultivation of GMO Crops[32] contains several formal rules that must be observed by the GMO cultivator.[33] If these rules are violated it is not unlikely that the courts will find that there is a presumption of fault. In that case, the GMO cultivator will be regarded as having acted negligently unless he can prove otherwise.

(b) To the extent a general strict liability regime may be applicable, please describe its requirements for establishing liability.

41 No general strict liability regime is applicable, but see (c) below on the law of neighbourhood conflicts.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

42 Danish law has special – court-developed – rules on neighbourhood problems. According to these rules, a neighbour must accept inconveniences that are immaterial or usual in the specific area. If the limit as to what must be accepted is exceeded, damages can be claimed for the loss suffered. It has not been quite clear whether liability in these cases was fault-based or strict.[34] In cases concerning the liability of public authorities, strict liability has been imposed in the decisions U 1999.353 H, U 1999.361 H and 1999.598 H. These cases concerned inconvenience caused by traffic noise from highways built by the state. In the decisions, it was made clear that the decisive factor was whether the inconveniences caused to the neighbour were greater than what it was reasonable to expect, seen in the light of the ordinary developments in society with regard to traffic. The basic reason for imposing liability in the cases was the thought that, with regard to compensation, there should be equal treatment of neighbours whose land had been expropriated and neighbours whose land had not been expropriated. Only recently, it has been decided that strict liability also applies in neighbourhood conflicts between individuals. Thus, in the case U 2006.1290 H a mobile telephone company erected a 48 meter tall pylon 2.5 meters from A's property, 13 meters from the garage and 23,5 meters from

[31] *Von Eyben/Isager* (supra fn. 23) 87.

[32] Executive Order no. 220 of 31. 3. 2005.

[33] For instance, appendix 1 contains rules as to the required distance between fields where GMO crops are grown near fields with conventional or ecological crops.

[34] In *von Eyben/Isager* (supra fn. 23) 135 it is implicitly assumed that in general, neighbourhood conflicts are not subject to a rule of strict liability. In contrast, it is assumed in *B. von Eyben/P. Mortensen/P. Pagh*, Fast ejendom (1999) 149, that as regards nuisances of a lasting character there is no need for a "traditional negligence" test. In *Vinding Kruse* (supra fn. 29) 248 249 it is assumed that tort law principles play a minor role in relation to neighbourhood conflicts of a lasting character.

the house. A claimed damages to cover the diminution in value of his house. The Supreme Court found that the telephone company was liable regardless of the fact that the erection of the pylon had been approved by the municipality. Hence, there was no negligence on the part of the telephone company. The decisive factor was that the placement of the pylon had led to a diminution in value of A's property and that the inconveniences caused by the placement exceeded what A was required to tolerate seen in the light of the ordinary developments in society.

The question is whether the rule established in the decision U 2006.1290 H would be applicable in a GMO case. Although the case concerns the erection of a pylon it seems unlikely that the established rule should be confined to this type of case. It must be assumed that the case establishes a more general rule of strict liability in neighbourhood conflicts in which the inconvenience caused has a more lasting character. Consequently, it must be assumed that it could also be applicable in a GMO case. 43

The next question is whether inconveniencies brought about by GMO cultivation by a neighbour exceeds the limits of what should be accepted. As of now, GMO cultivation is not being practiced on a large scale in Denmark. Therefore, it is difficult to say to what extent inconveniencies brought about by GMO cultivation by a neighbour will exceed the limits of what should be accepted. As described above, there are several formal rules that must be observed by the GMO cultivator. The GMO cultivator may have an expectation that he will not be liable as long as he lives up to these rules. However, in U 2006.1290 H liability was imposed regardless of the fact that the erection of the pylon had been approved of by a public authority. Therefore, it probably cannot be assumed that the fact that the GMO cultivator has been granted permission to cultivate by means of GMOs will exempt him from liability. Most likely, it will nevertheless be possible to reach the conclusion that inconveniences brought about by GMOs exceed the limit of what should be accepted in the light of ordinary developments in society. As GMO cultivation becomes more common, the threshold for reaching this conclusion may be lowered. 44

4. Damage and remedies

(a) How is damage defined and measured?

There is no clear definition of the concept of damage in Danish tort law. The basic principle for measuring damages is that, economically, the injured party should be put in the same position as he was in before the injury. This means that the injured party is entitled to full compensation. It also means that he is not entitled to an enrichment. In relation to property, damage is usually measured as the difference between the purchase price of the goods in undamaged condition and the purchase price of the goods in the damaged condition. In addition, loss of profits are compensable. It is possible that damage to crops due to GMO admixture would be characterised as property damage. In that case, 45

the principles described above would be applied for measuring damages. It is also possible that the damage would be regarded as pure economic loss. As a general rule, pure economic loss is not handled differently from other types of losses in Danish law. Notably, Danish law does not proceed from a principle of no compensation for pure economic loss. Thus, presumably the starting point would be to apply the rules described above also if the loss is considered to be purely economic.[35] The claim would be subject to the general rules of adequacy limiting the extent to which damages can be claimed.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

46 There are no general rules on this question in Danish law. However, case law shows that in the context of neighbourhood conflicts a diminution in value of the neighbour's property caused by the mere risk that the neighbour will suffer some kind of inconvenience is sufficient for claiming compensation.[36] Thus, in U 1998.1515 H fear of a health risk was regarded as a basis for awarding damages for diminution in value. The case concerned a house which had been bought by A. Afterwards the municipality (M) placed a high tension line near the house. At the time there was a debate as to whether high tension lines could cause health problems such as cancer. The fear that this might be so caused the value of A's house to drop. A claimed damages for the lost value from M. The Supreme Court found that A was entitled to damages for the lost value. It was argued that compensation should only be payable to the extent that the inconveniences exceeded the level of what had to be tolerated. However, the Supreme Court disregarded this argument and awarded full compensation.[37] The case can be compared to the GMO situation described above where the value of a crop drops because of fear that it contains GMO admix. Although U 1998.1515 H concerned a different kind of harm (possible health risk), it must be assumed that a diminution in value caused by mere fear will also in other cases be sufficient for awarding damages.[38] Normally, however, damages will only be awarded to the extent that the inconveniences exceed the level of what should be tolerated – taking into account the ordinary development in society. In U 1998.1515 H, the surrounding houses had been granted compensation by way of expropriation. In legal literature it is presumed that the court wished to achieve equal treatment of the plaintiff and the owners of the houses that had been expropriated.[39] Until recently therefore, it has seemed doubtful whether a claim could also be made against a private individual outside the expropriation context. However, on the basis of U 2006.1290 H, described above it must be assumed that individuals can be liable according to the same rules. Therefore,

[35] *Von Eyben/Isager* (supra fn. 23) 252.
[36] *Von Eyben/Mortensen/Pagh* (supra fn. 34) 147.
[37] When damages were not reduced in U 1998.1515 H it was probably due to the fact that the case concerned fear of *health* risk, see *Lene Pagter Kristensen*, UfR2000B.403, at 412 413.
[38] *Von Eyben/Mortensen/Pagh* (supra fn. 34) 215.
[39] *Lene Pagter Kristensen,* UfR2000B.403, at 412 413.

it must be assumed that it would also be possible to claim damages from a GMO farmer in the case where there is fear that the GMO has spread and this has led to a decrease in the value of the crops belonging to the conventional farmer.

(c) Where does your legal system draw the line between compensable and non compensable losses?

See the answer to question (b) above. 47

(d) What are the criteria for determining the amount of compensation in general?

See the answer to question (a) above. 48

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

There is no financial limit to liability but the injured party has a duty to mitigate the loss. 49

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

The special rules in relation to the cultivation of GMO crops do not oblige the cultivators to obtain liability insurance. 50

(g) Which procedures apply to obtain redress in such cases?

As there are no special insurance requirements, there are no special procedures. 51

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

No general compensation schemes are in force. 52

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

According to § 9 of the Governmental Notice on Compensation, the person who claims damages under the compensation scheme must cover the expenses associated with sampling and testing. There is no general monitoring system. 53

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

54 See the answer to question III 1.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

55 According to § 9 of the Executive Order on Compensation, the Plant Directorate reimburses the person claiming damages under the compensation scheme if the test proves actual GMO presence.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

56 No special rules are in force

2. General rules of jurisdiction and choice of law

57 As regards questions of jurisdiction, the general rule is found in the Civil Procedure Act (*retsplejeloven*)[40] § 235. According to this rule, the defendant must be sued in the jurisdiction where he lives. However, according to § 243, in cases concerning tort actions the defendant can also be sued in the jurisdiction in which he is domiciled. If the case concerns cross-border issues, the Brussels Convention of 1968[41] can be applicable, cf. the Civil Procedure Act § 247.[42] Accordingly, as a general rule the defendant must be sued in the country in which he is domiciled, cf. art. 2. However, in cases concerning tort actions the defendant can also be sued in the country in which the harmful event occurred, cf. art. 5, section 3.[43] Thus, in cases concerning GMO spreading cross-border, the injured party will have a choice between suing the GMO cultivator in the country in which he is domiciled and suing in the country in which the damage occurred, i.e. typically the country in which the injured party is domiciled.

58 As regards questions on choice of law, the rules in Danish law are judge-made. Normally, the general rule is described as the *lex loci delicti*.[44] This means that the law of the country in which the harm took place is to be applied. However, it is not clear which rule to apply when the harmful act takes place in one

[40] Act no. 910 of 27. 9. 2005 with later amendments.
[41] EC Convention on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters, Brussels 1968.
[42] If the defendant resides in Norway, Iceland or Switzerland, the Lugano Convention is applica ble.
[43] According to ECJ 21/76, *Bier* [1976] ECR 1735 the plaintiff is free to choose between the country in which the harmful act took place and the country in which the consequences of the harmful act occurred.
[44] See for instance U 1963.838.

country but the effect occurs in a different country.[45] Consequently, it would be unclear which rule to apply in a case where a GMO has spread cross-border from one crop to another.

[45] *J. Lookofsky,* International privatret (3rd ed. 2004) 102.

Economic Loss Caused by GMOs in Estonia

Irene Kull/Villu Kõve

I. Special liability or compensation regimes

1. Introduction

In Estonia, there is no special regulation of civil liability concerning the deliberate release of GMOs into the environment and their admixture with ordinary crops. Neither is such kind of special regulation being drafted at the moment. The same applies to different kinds of assurances (obligatory liability insurance, guarantees, compensation funds). 1

There are two laws which directly regulate GMOs in Estonia – the Deliberate Release into the Environment of Genetically Modified Organisms Act (DREGMOA)[1] (originating from Directive 2001/18/EC of the European Parliament and of the Council on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC) and the Contained Use of Genetically Modified Micro-Organisms Act[2] (GMMO) (originating from Directive 90/219/EEC of the Council on the contained use of genetically modified micro-organisms). The Food Act[3], Feedingstuffs Act[4], Plant Protection Act[5] and Fertilizers Act[6] have provisions concerning GMOs as well. All those legal Acts consist of public law regulations of GMOs, especially the right to use and control GMOs as well as the punishments for violations of the law. 2

[1] Deliberate Release into the Environment of Genetically Modified Organisms Act (*geneetiliselt muundatud organismide keskkonda viimise seadus*). Passed 14. 4. 2004. State Gazette/*Riigi Teataja* (RT) I 2004, No. 30, Art. 209. All legal Acts are available in English: www.legaltext.ee.

[2] Contained Use of Genetically Modified Micro Organisms Act (*geneetiliselt muundatud mikroorganismide suletud keskkonnas kasutamise seadus*). Passed 21. 11. 2001. RT I 2001, No. 97, Art. 603; last amendments 19. 6. 2002.

[3] Food Act (*toiduseadus*). Passed 25. 2. 1999. RT I 1999, No. 30, Art. 415; consolidated text RT I 2002, 13, 81; last amendments 19. 6. 2002.

[4] Feedingstuffs Act (*söödaseadus*). Passed 23. 1. 2002. RT I 2002, No. 18, Art. 97; last amend ments 19. 6. 2002.

[5] Plant Protection Act (*taimekaitseseadus*). Passed 21. 4. 2004. RT I 2004, No. 32, Art. 226; last amendments 8. 12. 2005.

[6] Fertilizers Act (*väetiseseadus*). Passed 11. 6. 2003. RT I 2003, No. 51, Art. 352.

3 Regulations regarding civil liability for GMOs can be found in § 32 of DREGMOA according to subsection 1 of which, damage caused by the illegal or deliberate release of GMOs into the environment or damage from the illegal marketing of GMOs or genetically modified products will be compensated, as provided by the Law of Obligations Act (LOA)[7] i.e. under the general rules of civil liability. According to § 32 subsection 2 of DREGMOA, if a person does not get rid of the GMOs legally and deliberately releases them into the environment or does not clean the pollution caused by the released GMOs, the Environmental Inspectorate will apply coercive measures pursuant to the procedure provided by the Substitutive Enforcement and Penalty Payment Act[8].

4 According to § 32 subsection 3 of DREGMOA, the Minister of the Environment will evaluate the cleaning up costs of the pollution at the expense of the polluter. Paragraph 14 subsection 1 of GMMO provides that the pollution caused by an accident must be cleaned up by the "user". If the "user" does not clean up the pollution from the deliberate release of GMOs into the environment, according to subsection 2 of the same paragraph, the clean-up is organised by the body of environmental supervision at the expense of the "user" and according to subsection 3 of the same paragraph, the Substitutive Enforcement and Penalty Payment Act will be applied.

5 Due to the fact that DREGMOA refers to the Law of Obligations Act concerning the compensation of damage, the authors will now explain the general system of delictual liability according to LOA. According to LOA § 1043, whoever causes damage has to compensate the victim for it if his actions caused the damage or if he was responsible for it according to the law. In addition to fault-based liability, LOA also provides strict liability for damage caused by major sources of danger (LOA § 1056–1067). The scale of compensation is regulated by LOA § 127–140.

6 Additionally to the previously mentioned legal Acts, the Law of Property Act[9] which regulates damage to property (protection of ownership in the case of violations unrelated to loss of possession, § 89 of the Law of Property Act) and damage caused by nuisance (§ 143 of the Law of Property Act) may also be relevant (for example, when one of the neighbours grows GMOs). See part II section 3c.

7 All in all, it cannot be said that civil liability concerning GMOs is regulated coherently in the Estonian legal system. First of all, it is not clear if it regulates liability without fault or excusability-based liability or fault-based liability (presumably it must be liability without fault). The range of compensation from personal and material damage to economic damage is not clear either.

[7] Law of Obligations Act (*võlaõigusseadus*). Passed 28. 9. 2001, entered into force 1. 7. 2002. RT I 2001, No. 81, Art. 487; last amendments 19. 10. 2005.

[8] Substitutive Enforcement and Penalty Payment Act (*asendustäitmise ja sunniraha seadus*). Passed 9. 5. 2001. RT I 2001, No. 50, Art. 283; last amendments 15. 11. 2001.

[9] Law of Property Act (*asjaõigusseadus*). Passed 9. 6. 1993. RT I 1993, No. 39, Art. 590; last amendments 22. 4. 2004.

There is no court practice relating to these provisions in Estonia and no scientific literature on the subject. The court practice concerning civil liability, as it is regulated by the Law of Obligations Act, is also scarce. Therefore to answer the questions, mainly legislative Acts (DREGMOA, GMMO and LOA) have to be taken into account.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

There are no special regulations and court practice in Estonia concerns finding the link between the growing or marketing of GMOs and the damage brought upon others by this. According to § 32 subsection 1 of DREGMOA, there must exist a causal link between GMOs or the illegal deliberate release of GMOs into the environment or the marketing of genetically modified products and the damage caused. According to § 14 subsections 1 and 2 of GMMO there must be a causal link between an accident (accidental release of GMOs into the environment) and the pollution caused. 8

It is said in LOA that to get compensation for damage there must be causation – according to § 127 subsection 4 of LOA, a person shall compensate for damage caused only if the circumstances upon which the liability of the person is based and the damage caused are related in such a manner that the damage is a consequence of the circumstances (causation). It is the *conditio sine qua non* rule. It must be observed together with the general purpose of compensation (for instance, Supreme Court ruling from Dec. 21, 2005, on a civil matter No. 3-2-1-137-05), which is, as set out in § 127 subsection 1 of LOA, to place the aggrieved person in a situation as near as possible to that in which the person would have been in if the circumstances which are the basis for the compensation obligation had not occurred. Causation does not have to be a direct link between the actions of the person and the consequences (damage), i.e. the damage does not have to be the result of the breaking of the law, but it can occur due to a sequel of events, that are started by the person's actions (Supreme Court ruling from Dec. 10, 2005 on a civil matter No 3-2-1-125-03 and a ruling from Dec. 7, 2005 on a civil matter No. 3-2-1-149-05). To establish causation, elimination and substitution methods are used. With the elimination method, the damage is in causal link with the actions of the person when the person's actions were an unavoidable prerequisite for the damage that resulted, i.e. there would not have been any damage if there had not been certain actions. Thus in order to make sure that there is causation, we need to answer the question whether there would have been damage if the defendant had not acted in this way. If the answer is no then the defendant has to prove that there would have been damage without him having broken the law or contract (Supreme Court ruling from Dec. 7, 2005 on a civil matter No. 3-2-1-149-05). If it is 9

established that the damage would have occurred even without the defendant's actions, it cannot be regarded as a substantial cause and the defendant is not liable for it. A method of substitution is used in cases of inactivity and then it is investigated whether the consequences would have occurred if the defendant had acted in the way the plaintiff demanded. If only the *conditio sine qua non* rule applied to establish causation, it would impose large-scaled liability concerning compensation upon the obligor and it would increase the number of potentially liable persons. In the case of delictual liability, the extent of any claims for compensation of damage is limited by the so-called theory of the purpose of breached obligation (LOA § 127 subs. 2), according to which damage shall not be compensated to the extent that the prevention of damage was not the purpose of the obligation or provision due to the non-performance of which the compensation obligation arose. In order to establish the purpose of the obligation, criteria of certifying adequate causation must be taken into account – if the damage that resulted from breaking that kind of obligation is highly unlikely then generally it may be presumed that the purpose of the obligation was not to prevent that kind of damage. Court practice concerning causation according to LOA has not yet been developed.

10 Costs involved in certifying the damage and presenting claims, for instance possible expert costs to establish causation are connected to the definition of direct pecuniary damage as in § 128 subsection 3 of LOA and are thus compensable. Fees for experts shall be paid in advance by the party who submits the application from which such costs arise (§ 148 subs. 3 Code of Civil Procedure). In the case of a poor economic state, one may call upon the State Legal Aid to pay the costs, i.e. leaving all the costs partly or fully to be paid for by the state (§ 180 subs. 1 limb 1 Code of Civil Procedure). If the plaintiff wins the case, the expert's costs with other legal costs will be paid by the other party according to § 162 subsection 1 of the Code of Civil Procedure.

(b) How is the burden of proof distributed?

11 According to § 230 subsection 1 of the Code of Civil Procedure, each party shall prove the facts on which the claims and objections of the party are based if the law does not provide otherwise. Thus, if the aggrieved party demands compensation, he as a plaintiff has to establish the circumstances that prove his demands – in the case of a delictual claim he has to prove that the other party's actions were illegal and that the actions caused the damage. In the case of fault-based liability, the tortfeasor has to prove that he is not at fault in causing the damage as required by § 1050 subsection 1 of LOA. Special regulations concern non-fault liability (see part I section 3a). If a dangerous structure or thing is a potential cause of damage, it shall be presumed according to § 1058 subsection 2 of LOA that the damage is caused as a result of a particular danger arising from the structure or thing. This does not apply if the structure or thing is operated according to requirements and if the operation thereof is not disturbed. Thus, if we consider that liability for GMOs is a strict liability, the burden of proof for the causality partly turns in favour of the aggrieved party.

See part I section 2c about liability for damage caused by multiple causes. 12

(c) How are problems of multiple causes handled by the regime?

There is no special regulation in the law concerning GMOs. If several persons are liable for the same damage caused to the third party, they shall be solidarily liable for payment of the compensation (LOA, § 137 subs. 1). In relation to the persons who caused the damage, liability shall be divided, according to § 137 subsection 2 of LOA, taking into account all circumstances, in particular the gravity of the non-performance or the unlawful character of other conduct and the degree of risk borne by each person. According to § 69 subsection 2 of LOA, if a solidary obligor has performed the solidary obligation, the claim of the obligee against the other obligors transfers to the solidary obligor (right of recourse of solidary obligor) except to the extent of the solidary obligor's own share of the obligation. According to § 69 subsection 3 of LOA, the other obligors have a right of recourse against the obligor who is released from the solidary obligation to the extent of the obligor's share of the obligation in relation to the solidary obligors. This does not apply if the obligee reduces the claim thereof to the extent of the share which the obligor, with regard to whom the obligee waived the claim, is to bear in relations between the solidary obligors. If a solidary obligor fails to perform the share thereof, in the obligation with regard to the solidary obligor who performed the obligation, the solidary obligor who performed the obligation and the other solidary obligors, according to § 69 subsection 6 of LOA, shall be liable for the performance of such share, proportionally to their shares in the obligation. The claim against the solidary obligor who fails to perform the obligation transfers to the solidary obligor who performed the obligation and to the other obligors. As said in § 70 subsection 1 of LOA, the limitation period for the right of recourse by a solidary obligor who has performed the solidary obligation expires at the time when the claim of the obligee against the solidary obligor, against whom the right of recourse is exercised, would expire. According to § 70 subsection 2 of LOA, the limitation period for the right of recourse by a solidary obligor shall not expire earlier than six months as of the date on which the solidary obligor performed the obligation or the obligee filed an action with a court against the obligor for the performance of the obligation. 13

If several persons may be liable for the damage caused and it has been established that any of these persons could have caused the damage, then according to § 138 subsections 1 and 3 of LOA, compensation for the damage may be claimed from all such persons to an extent in proportion to the probability that the damage was caused by the person concerned. The rule of § 138 subsection 2 of LOA is that a person obligated to compensate for the damage shall be released from liability if the person proves that the damage was not caused thereby. This kind of regulation eases the burden of proof for the aggrieved party. 14

In legal theory, hypothetical causality is known as a situation where the damage was caused by the actions of the obligor but the same damage would have 15

occurred later due to a different factor (about causality in the Estonian legal system see I. Kull, M. Käerdi, V. Kõve. Võlaõigus I. Üldosa/Law of Obligations I. General Part. Tallinn, Juura, 2005, pp. 271–272, in Estonian). As a rule, the other factor (i.e. the other cause of damage) has to be taken into account when making the defendant liable for the damage or making the defendant compensate for the damage, i.e. generally when there is another factor involved the defendant has to compensate less for the damage or he is not liable for the damage at all. This rule applies in the first place to damage occurring in the future (loss of profit). However, this principle does not apply when the other cause of the damage would bring about liability for the third party. Compensation for the damage shall not be reduced when the damage had already occurred before the other factor could occur.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

16 As already mentioned in point 1, it is not exactly clear according to Estonian law whether delictual liability is a fault-based or strict liability regime in the case of GMOs. The reference to LOA in § 32 subsection 1 of DREGMOA leaves it open and makes it possible to apply both types of liability. In § 14 subsection 1 of GMMO where there is no reference to LOA, a firmer answer cannot be found. In the case of unlawfully caused damage, a fault-based liability regime is presumed if the law does not provide otherwise (LOA, § 1043). Despite the lack of court practice concerning GMOs and also the limited number of cases concerning strict liability, it may be assumed that liability for damage caused by GMOs is strict liability under the Estonian legal system. That may be concluded from the wording of the provisions of DREGMOA and GMMO as well as the general logic of these laws, but also from § 1056 subsection 2 of LOA, which probably allows GMOs to be deemed a major source of danger. In this provision it is said that a thing or an activity is deemed to be a major source of danger if, due to its nature or to the substances or means used in connection with the thing or activity, major or frequent damage may arise therefrom even if it is handled or performed with due diligence by a specialist. According to § 1058 subsection 1 of LOA, the owner of a thing shall be liable for damage caused as a result of a particular danger arising from the thing, among others, due to its environmentally hazardous characteristics and for damage caused as a result of particular danger arising from the thing for any other reason. It is not precluded to (at least partly) handle liability from GMOs, according to § 1061 of LOA, as the liability of a producer when GMOs may be regarded as defective products.

17 In spite of the above, the liability of a producer does not preclude or restrict the right to file claims on any other legal basis, including claims for compensation of unlawfully and wrongfully caused damage (LOA, § 1056 subs. 3 and § 1061 subs. 5). As fault-based liability is broader than strict liability (for example, in the case of loss of profit), fault-based liability might be more meaningful for

that reason (see part I section 4a). According to LOA § 1043, a person (tortfeasor) who unlawfully causes damage to another person (victim) shall compensate for the damage caused if the tortfeasor is guilty of causing the damage or is liable for causing the damage pursuant to the law. Causing harm according to § 1045 subsection 1 of LOA is unlawful if, above all, the damage causes the death of a victim (point 1), causes bodily injury to or damage to the health of the victim (point 2), consists of a violation of the rights of ownership or a similar right or rights of possession of the victim (point 5), interferes with the economic or professional activities of a person (point 6), violates a duty arising from law (point 7) or is some intentional behaviour contrary to good morals (point 8). According to § 1050 subsection 1 of LOA a tortfeasor is not liable for causing the damage if the tortfeasor proves that he is not guilty of causing the damage, unless otherwise provided by law. If the victim (injured person) claims compensation for the damage, he as a plaintiff bears the burden of proving the facts on which the claim is based and in the case of delictual liability, the unlawful action of the tortfeasor (*tekitaja õigusevastast tegu*), damage and the causality between the actions and damage. In the case of fault-based liability, a tortfeasor must prove that he is not guilty of the damage to be free from liability (see part I section 2b).

18 According to § 1050 subsection 2 of LOA, the situation, age, education, knowledge, abilities and other personal characteristics of a person shall be taken into consideration upon the assessment of the person's guilt (i.e. the tortfeasor's subjective characteristics shall be taken into account).

19 The limitation period for a claim arising from unlawfully caused damage shall be three years as of the moment when the entitled person becomes or should have become aware of the damage and of the person obligated to compensate for the damage (§ 150 subs. 1 LGPCCA[10]). A claim arising from unlawfully caused damage expires no later than ten years after the performance of the act or the occurrence of the event which caused the damage. The limitation period for a claim arising from the causation of death, a bodily injury or damage to health or from deprivation of liberty shall be three years as of the moment when the entitled person became or should have become aware of the damage and of the person obligated to compensate for the damage, regardless of the legal basis of the claim. The claims expire no later than thirty years as of the performance of the act or occurrence of the event which caused the damage (§ 153 subs. 3 LGPCCA). For liability for damage caused by other persons, see part I section 2c.

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

20 As mentioned before (see part I section 3a), liability for GMOs will probably be deemed to be non-fault based liability (i.e. risk-based liability) or at least

[10] General Part of the Civil Code Act (*tsiviilseadustiku üldosa seadus*). RT I 2002, No. 35, Art. 216, adopted 27. 3. 2002; last amendments 19. 11. 2003.

partly, the liability of a producer. According to § 1056 subsection 1 of LOA, if the damage caused results from a danger characteristic to a thing constituting a major source of danger or from an extremely dangerous activity, the person who manages the source of that danger shall be liable for any damage caused regardless of the person's guilt. § 1058 subsection 1 of LOA prescribes that the owner of a structure or a thing shall be liable for any damage caused as a result of a particular danger arising from the thing, among other things, due to its environmentally hazardous characteristics and for any damage caused as a result of a particular danger arising from the thing for any other reason. To contest the basis brought in § 1058 subsection 2 of LOA that the damage is caused as a result of a particular danger arising from the structure or thing, the owner has to prove that the structure or thing is operated according to requirements and that the operation thereof is not disturbed. In order to avoid liability, the owner according to § 1058 subsection 3 of LOA has to prove that the damage is caused within the boundaries of a marked immovable in the possession of the owner of the dangerous structure, the damage is caused by *force majeure* or the victim participated in the operation of the dangerous structure or thing. According to § 1058 subsection 4 of LOA, if a dangerous structure or thing is operated according to requirements and the operation thereof is not disturbed, the owner of the structure or thing is not liable for damaging a thing of the victim's in so far as the thing is not materially damaged or, if it is damaged, to an extent deemed to be normal considering the local circumstances. The limitation period for claims based on strict liability is the same as the limitation period for claims based on fault-based liability (see also part I section 3a).

21 According to § 1061 subsection 1 of LOA, the producer shall be liable for causing the death of a person and for causing bodily injury to or damage to the health of a person if this is caused by a defective product. If a defective product causes the destruction of or damage to a thing, as set out in § 1061 subsection 2 of LOA, the producer shall be liable for the damage caused thereby, only if this type of product is normally used outside economic or professional activities and the victim mainly used the product outside their economic or professional activities and the extent of the damage caused exceeds an amount equal to € 500. The producer, according to § 1064 subsection 1 of LOA, shall not be liable for any damage arising from a product if the producer proves that he did not place the product on the market, circumstances exist on the basis of which it may be presumed that the product did not have the deficiency which caused the damage at the time that the product was placed on the market by the producer, the producer did not manufacture the product for sale or for marketing or in any other manner produce or market it in the course of the producer's economic or professional activities, the deficiency is caused by the compliance of the product with the mandatory requirements as at the time of placing the product on the market and due to the level of scientific and technical knowledge at the time of placing the product on the market, the deficiency could not have been detected. According to subsection 2 of the same paragraph, a producer of raw materials or a part of a product shall not be liable for damage if the producer proves that the deficiency of the raw material or part of the product is caused

by the construction of the finished product or the instructions provided by the producer of the finished product. The limitation period for claims arising from the liability of a producer, according to § 1066 subsection 1 of LOA, is three years as of the date on which the victim becomes aware or should reasonably have become aware of the damage, the deficiency and the identity of the producer and regardless of that, claims under subsection 2 of the same paragraph shall terminate after ten years have passed as of the date on which the product which caused the damage is placed on the market, unless an action has been filed with a court by that time. See part I section 2 about establishing causality and the liability of several persons to compensate for the damage.

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

The environmental inspectorate bodies (i.e. state bodies) have an obligation to eliminate environmental pollution at the tortfeasor's expense. This stems from § 32 subsection 2 of DREGMOA according to which upon failure to remove, as required, the genetically modified organisms released into the environment or failure to eliminate the environmental pollution caused by the release into the environment of genetically modified organisms, the Environmental Inspectorate may apply a coercive measure pursuant to the procedure provided for in the Substitutive Enforcement and Penalty Payment Act. The same principle is provided in § 14 subsection 2 of the Substitutive Enforcement and Penalty Payment Act when the user does not clean up the pollution caused by the deliberate release of GMOs into the environment. However, the extent of this obligation and its comparability with the tortfeasor's compensation obligation is not clear. Presumably it is not meant with this law that the state should offer monetary compensation for damage to victims but, in the first place, the aim of the law is to prevent the future spread of GMOs. 22

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

There are no differences in the law. 23

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country? In particular, can claims based on general tort law still be brought either simultaneously or subsequently?

According to § 1056 subsection 3 and § 1061 subsection 5 of LOA, strict liability or the liability of a producer does not preclude or restrict the right to file claims on any other legal basis, including claims for compensation of unlawfully and wrongfully caused damage. The motive for this could be the larger scale of compensation (see part I section 4a). 24

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

25 The purpose of compensation for damage according to § 127 subsection 1 of LOA is to place the aggrieved person in a situation as near as possible to that in which the person would have been in if the circumstances which are the basis for the compensation obligation had not occurred (*Differenztheorie*). The extent of compensation for damage is restricted by § 127 subsection 2 of LOA, according to which damage shall not be compensated to the extent that prevention of damage was not the purpose of the obligation or provision and due to the non-performance of which the obligation to compensate arose. In the case of contractual obligations, the extent of compensation for damage is connected with foreseeability (§ 127 subs. 3 LOA). Another basis for the compensation of damage is causality (see part I section 2a).

26 Compensation for harm arising from the death of a person, health damage, bodily injury and destruction or loss of a thing may be claimed in cases of fault-based liability as well as strict liability (risk liability).

27 In the case of an obligation to compensate for the damage arising from the death of a person, according to § 129 of LOA, the obligated person shall compensate for the expenses arising from the death of the deceased person, in particular for reasonable funeral expenses, reasonable medical expenses relating to the health damage or bodily injury which caused the death of the person, and the damage arising from the aggrieved person's interim incapacity to work and maintenance costs for dependants of the deceased.

28 In the case of an obligation to compensate for damage arising from health damage or bodily injury caused to a person, according to LOA § 130 subsection 1, the obligated person shall compensate the aggrieved person for expenses arising from such damage or injury, including expenses arising from the increased needs of the aggrieved person, and damage arising from total or partial incapacity to work, including damage arising from a decrease in income or deterioration of the future economic potential of the aggrieved person. According to subsection 2 of the same paragraph, the obligated person shall pay the aggrieved person a reasonable amount of money as compensation for the non-pecuniary damage caused to the person by such damage or injury. Part I section 4d deals with the compensation for damage arising from the destruction or loss of a thing.

29 According to LOA § 133 subsection 1, if damage is caused by environmentally hazardous activities, damage related to a deterioration in environmental quality shall also be compensated for. Expenses relating to preventing an increase in the damage and to applying reasonable measures for mitigating the consequences of the damage, and the damage arising from the application of such measures shall also be compensated for. According to LOA § 133 subsec-

tion 2, damage to the environment and expenses concerning pollution shall be compensated for to the extent and pursuant to the procedure provided by law. However, there is still no special regulation in the law and the real area of application of LOA § 133 is unclear.

30 Compensation for economic damage concerning GMOs is also unclear. Pecuniary damage includes, according to LOA § 128 subsection 2, loss of profit which according to subsection 4 of the same paragraph is loss of the gain which a person would have been likely to receive in the circumstances, in particular as a result of the preparations made by the person, if the circumstances on which the compensation for damage is based had not occurred. Loss of profit may also include the loss of an opportunity to receive a gain. Regarding strict liability, it is prescribed in § 1056 subsection 1 of LOA that a person who manages a major source of danger shall be liable for the death of, bodily injury or damage caused to the health of a victim, and for damaging a thing of the victim's. Liability of a producer is also, according to § 1061 subsections 1 and 2 of LOA, restricted to health damage or bodily injury and damage to a thing. In the case of fault-based delictual liability, the extent of compensation for pecuniary damage is also unclear (compared to contractual liability where pecuniary damage as a rule will be compensated). The Supreme Court of Estonia has found that in the case of the damage or destruction of a thing, economic damage usually cannot be compensated and that the law on non-contractual liability does not protect all kinds of property but certain legal rights and interests protected by law. Compensation for other damage beside the costs concerning the restoration of a thing becomes relevant only if it was the purpose of the provision due to the non-performance of which the damage arose (see Supreme Court ruling from May 13, 2005 on a civil matter No. 3-2-1-64-05). As one of the goals of the regulation concerning GMOs is to prevent the mixing of GMOs with "normal" crops, it is possible that one can demand compensation for economic damage due to the protective purpose of the provisions. However, at the moment it is not certain.

31 Damage shall generally be compensated in lump sum. In the event that bodily harm is caused, the damage shall usually be compensated for in instalments (§ 136 LOA). If damage is caused in part by circumstances dependent on the aggrieved party or due to a risk borne by the aggrieved party who, amongst others things, failed to perform any act which would have reduced the damage caused (if the aggrieved person could reasonably have been expected to do so), the amount of compensation for the damage shall be reduced to the extent that such circumstances or risk contributed to the damage (§ 139 LOA). According to § 127 subsection 5 of LOA, any gain received by the aggrieved party as a result of the damage caused, particularly the costs avoided by the aggrieved party, shall be deducted from the compensation for the damage unless deduction is contrary to the purpose of the compensation. If damage is established but the exact extent of the damage cannot be established, including in the event of non-pecuniary damage or future damage, the amount of compensation, according to § 127 subsection 6 of LOA, it shall be determined by the court. According

to LOA § 140 subsection 1, the court may reduce the amount of compensation for damage if compensation in full would be grossly unfair with regard to the obligated person or not reasonably acceptable for any other reason. In such a case, all circumstances, in particular the nature of the liability, relationships between the persons and their economic situations including insurance coverage, shall be taken into account.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

32 This cannot be answered in one way because there is no special regulation or court practice. Also in order to give an exact answer it must be possible to demand compensation for economic damage (see part I section 4a). According to LOA § 128 subsection 3, direct pecuniary damage includes primarily, the value of the lost or destroyed property or the decrease in the value of property due to deterioration (even if such decrease occurs in the future) and reasonable expenses which have been incurred or will be incurred in the future due to the damage, including reasonable expenses relating to the prevention or mitigation of damage and receipt of compensation, expenses relating to the establishment of the damage and submission of claims relating to compensation for the damage. Loss of profit, according to § 128 subsection 4 of LOA, is loss of the gain which a person would have been likely to receive in the circumstances, in particular, as a result of the preparations made by the person, if the circumstances on which the compensation for damage is based did not occur. Loss of profit may also include the loss of an opportunity to receive a gain. It may be possible for a farmer to get compensation for direct pecuniary damage as well as for loss of profit, due to the possibility of damage occurring in the future. Proving causality is also important (see part I section 2).

33 If damage is established but the exact extent of the damage cannot be established, including in the event of future damage, the amount of compensation, according to LOA § 127 subsection 6, such amount shall be determined by the court. The same principle is provided in § 233 subsection 1 of the Code of Civil Procedure which says that if, during civil proceedings, the damage is ascertained but the exact extent of the damage cannot be established, or if the establishment of the amount of the damage is unreasonably burdensome or expensive, the amount of compensation shall be determined by the court.

(c) Where does the scheme draw the line between compensable and non compensable losses?

34 There is no special regulation concerning this exact subject. Principally, claims for damages from other farmers cannot be ruled out, however, it is questionable whether, according to § 127 subsection 2 of LOA, the damage claims of such persons may be compensated. First of all, it depends on the extent to which the prevention of damage was the purpose of the special regulations concerning GMOs.

(d) What are the criteria for determining the amount of compensation?

35 In the case of an obligation to compensate for damage arising from the destruction or loss of a thing, according to § 132 subsection 1 of LOA, compensation shall be paid for an amount covering the reasonable expenses made to acquire a new thing of equal value. If by the time the damage is caused, the value of the thing has considerably decreased in comparison to the value of an equivalent new thing, the decrease shall be taken into account in a reasonable manner when determining the amount of compensation for the damage. According to LOA § 132 subsection 2, if an acquisition of a new thing of equal value is not possible, the value of the thing which was destroyed or lost shall be compensated for. If damage is caused to a thing, according to subsection 3 of the same paragraph, compensation for the damage shall cover, in particular, the reasonable costs of repairing the thing and the potential decrease in the value of the thing. If repairing the thing is unreasonably expensive in comparison to the value of the thing, compensation shall be paid pursuant to LOA § 132 subsection 1. If the damaged thing was necessary or useful for the aggrieved person, in particular for the person's economic or professional activities or work, compensation for the damage shall also cover the costs of using a thing of equal value during the time in which the damaged thing is being repaired or a new thing is being acquired. If the person does not use a thing of equal value, the person may claim compensation for loss of the advantages of use which the person could have benefited from during the time in which the thing is repaired or a new thing is being acquired. LOA § 134 subsection 4 makes it possible to claim a reasonable amount of money as compensation for non-pecuniary damage.

36 Pure economic damage may be compensated on the basis of fault liability and according to the LOA § 128 subsection 3. Direct pecuniary damage includes, primarily, the value of the lost or destroyed property or the decrease in the value of the property due to deterioration even if such decrease occurs in the future, and reasonable expenses which have been incurred or will be incurred in the future due to the damage, including reasonable expenses relating to the prevention or mitigation of damage and receipt of compensation. According to LOA § 128 subsection 4, loss of profit may also include the loss of an opportunity to receive a gain. However, in this case it is important to prove causality (see also part I section 2).

37 When it is certified that damage was caused, but the exact cost of the damage cannot be determined, then the court shall decide how much it ought to be (see part I section 4b). The court has to take into account generally acknowledged principles when determining the amount of compensation (see Supreme Court ruling from Dec. 21, 2004 on a civil matter No. 3-2-1-145-04). About the determination of the amount of the damage see part I sections 4a and 4b.

(e) Is there a financial limit to liability?

38 There is no maximum amount of compensation in the law concerning GMOs or just compensation for damage altogether. However, according to LOA § 140 subsection 1, the court may reduce the amount of compensation for damage if compensation in full would be grossly unfair with regard to the obligated person or not reasonably acceptable for any other reason. In such a case, all circumstances, in particular the nature of the liability, relationships between the persons and their economic situations, including insurance coverage, shall be taken into account. If damage is caused, in part by circumstances dependent on the aggrieved party or due to a risk borne by the aggrieved party, amongst other things, if he failed to perform any act which would have reduced the damage caused if he could reasonably have been expected to do so, the amount of compensation for the damage shall be reduced to the extent that such circumstances or risks contributed to the damage (LOA § 139).

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses, and/or are farmers required to take out first party insurance which would cover such losses?

39 According to Estonian law, it is not necessary for people operating with GMOs to take out liability insurance or to have some other sort of compensation system to cover potential losses and also farmers are not required to take out insurance which covers such losses.

(g) Which procedures apply to obtain redress?

40 As operators are not required to have insurance (see part I section 4f), redress demands cannot be made. For more about recourse claims concerning relations between several tortfeasors see part I section 2c. For more about the state claiming damages for cleaning up pollution caused by the tortfeasor see part I section 3c.

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

41 Authorisation for the deliberate release of GMOs into the environment and authorisation for their marketing may be suspended or revoked, according to DREGMOA § 12 subsections 7–9 and § 25 subsection 2, when risks related to them become evident.

42 According to § 1055 subsection 1 of LOA, the victim or the person who is threatened has the right to demand in the court of law that behaviour which causes damage be terminated or refrained from. According to LOA § 1055 subsection 2, the right to demand that behaviour which causes damage be terminated does not apply if it is reasonable to expect that such behaviour can be tolerated in human co-existence or due to significant public interest. In such a case, the victim has the right to file a claim for compensation for unlawfully

caused damage. Additionally, claims may be filed if one of the neighbours grows GMOs contrary to provisions prohibiting damage to property (see Law of Property Act § 89 – protection of ownership in cases of violations unrelated to loss of possession) and the spread of damaging nuisances (Law of Property Act § 143). See part II section 3c.

An action may be secured before the filing of an action if failure to secure the action may render compliance with the judgment difficult or impossible with the measures provided in the § 328 (1) of the Code of Civil Procedure Act. 43

5. Compensation funds

There are no compensation funds in Estonia which cover damage caused by GMOs and at the moment implementation of these kind of measures is not planned. 44

6. Comparison to other specific liability or compensation regimes

As there is no important special regulation, liability concerning GMOs is part of the general strict and fault-based liability which is not exceptional in any way. 45

Generally, environmental protection is regulated by the Nature Conservation Act and, according to § 77 subsection 1, damage caused to the environment by destroying or damaging protected natural objects and specimens of protected species must be compensated for. The Environmental Inspectorate and administrators of protected natural objects have the right, according to subsection 2 of the same paragraph, to file a claim with a court for all the damage caused to a protected natural object or a specimen of a species. The paragraph in hand does not (at least not literally) regulate the compensation for damage caused to the environment by deliberately releasing GMOs into the environment. 46

Civil liability regarding the escape of genetically modified animals in the course of an animal experiment is also regulated. In this case, according to § 57 subsection 2 of the Animal Protection Act, the person conducting the animal experiment shall immediately inform the authority which granted the permit thereof and, according to subsection 4 of the same paragraph, shall remove the genetically modified animals from the environment and remedy the environmental damage caused by the release of such animals into the environment. According to the Animal Protection Act § 57 subsections 3 and 5, the authority which granted the permit is also required to guarantee the application of all necessary measures and remedy the consequences; the person who remedies the environmental damage has the right to require the compensation of reasonable costs incurred from the person conducting the animal experiment. The authority which grants the permits shall organise, according to subsection 6 of the same paragraph, at the cost of the person who caused the damage, an assessment of the effectiveness of remedying the environmental damage. 47

48 For more about liability of the producer see part I section 3b.

II. General liability or other compensation schemes

1. Introduction

49 As liability concerning GMOs does not principally differ from the general liability system see part I section 1 for an answer.

2. Causation

50 See part I section 2.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

51 See part I section 3a.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

52 See part I section 3b.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

53 According to the Law of Property Act § 89, an owner has the right to demand the elimination of any violation of his right of ownership even if the violation is not related to a loss of possession. If there is reason to presume the recurrence of such a violation, the owner may demand the avoidance of the violation. A demand is precluded if the owner is required to endure the violation. More exact is § 143 subsection 1 of the Law of Property Act, according to which the owner of an immovable does not have the right to prohibit the spread of gas, smoke, steam, odour, soot, heat, noise, vibrations and other such nuisances coming from another immovable to the owner's immovable unless this significantly damages the use of the owner's immovable or is contrary to environmental protection requirements. The intentional direction of nuisances to a neighbouring immovable is prohibited. If a nuisance such as mentioned before significantly damages the use of an immovable but the person causing the nuisance cannot be expected to eliminate the nuisance for economic

reasons, the owner of the nuisanced immovable, according to subsection 2 of the same paragraph, has the right to demand compensation from the owner of the immovable causing the nuisance. The Supreme Court of Estonia has found that the purpose and goal of § 143 subsection 1 of the Law of Property Act in the first place is to regulate the obligation to endure on one's own immovable, nuisances stemming from a neighbouring immovable and the directing of these nuisances to an adjoining immovable (see Supreme Court ruling from Dec. 13, 2004 on a civil matter No. 3-2-1-141-04 and ruling from April 11, 2005 on a civil matter No. 3-2-1-33-05).

4. Damage and remedies

See part I section 4. 54

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

There are no special regulations concerning the costs of testing and sampling for GMOs. According to the Food Act § 49 subsection 1, a supervisory official has the right, pursuant to the established procedure and at the expense of a food business operator, to take the amount of samples necessary in order to carry out laboratory analyses. If, according to the results of the laboratory analysis, the food, raw materials for food or anything else that was subject to analysis does not conform to the requirements, the costs of the analyses carried out and of the analyses of control samples taken from the same lot for further tests shall be covered, according to subsection 5 of the same paragraph, by the food business operator. According to the Environmental Supervision Act § 20 subsection 1, the minimum quantity of samples of materials and substances necessary to ascertain the facts shall be collected free of charge, i.e. at the expense of the person being controlled. See part I section 2a about the costs of civil proceedings. 55

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

No such regulations are known. 56

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

The Food Act § 49 subsection 5 is the special regulation according to which the cost of the analyses of control samples can be left to be paid by the person being controlled. (See part III section 1.) 57

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

58 There are no special regulations of jurisdiction and conflict of laws concerning civil liability for GMOs (see also section 2 below).

59 According to § 50 subsection 1 of the Private International Law Act[11] (PILA), claims arising from unlawfully caused damage shall be governed by the law of the state where the act or event which forms the basis of the cause of the damage was performed or occurred. According to subsection 2 of the same paragraph, if the consequences do not become evident in the state where the act or event which formed the basis for causing the damage was performed or occurred, the law of the state where the consequences of the act or event became evident shall be applied at the request of the injured party. A special provision is PILA § 52 according to which, if a claim arising from the unlawful causation of damage is governed by foreign law, compensation ordered in Estonia shall not be significantly greater than the compensation prescribed for similar damage by Estonian law. According to PILA § 53 subsection 1, if a non-contractual obligation has a closer connection with the law of a state other than that which would be applicable pursuant to the provisions of PILA, the law of such other state applies. According to PILA § 54, the parties may agree on the application of Estonian law after the occurrence of the event or the performance of the act from which a non-contractual obligation arose.

60 Jurisdiction of the case in the European Union is determined under the rules of the EC Regulation 44/2001. The Code of Civil Procedure (§ 79 subs. 1) provides that an action shall be filed with the court of the residence of the defendant who is a natural person or with the court of the seat of the defendant who is a legal person. An action arising from the activities of an economic unit of a company (enterprise) may also be filed with the court of the location of the economic unit (§ 84 Code of Civil Procedure). A plaintiff may file an action for compensation for damage caused in the form of bodily injury, some other health disorder or the death of a provider with the court of the plaintiff's residence or the court of the place where the damage was caused (§ 94 Code of Civil Procedure).

2. General rules of jurisdiction and choice of law

61 According to § 50 subsection 1 of the Private International Law Act (PILA), claims arising from the unlawful causing of damage shall be governed by the law of the state where the act or event which forms the basis for the damage was performed or occurred. According to subsection 2 of the same paragraph, if the consequences do not become evident in the state where the act or event

[11] Private International Law Act (*rahvusvahelise eraõiguse seadus*). Passed 27. 3. 2002. RT I 2002, No. 35, Art. 217.

which formed the basis for the damage was performed or occurred, the law of the state where the consequences of the act or event became evident shall be applied at the request of the injured party. A special provision is PILA § 52, according to which, if a claim arising from the unlawful causing of damage is governed by foreign law, the compensation ordered in Estonia shall not be significantly greater than the compensation prescribed for similar damage by Estonian law. According to PILA § 53 subsection 1, if a non-contractual obligation has a closer connection with the law of a state other than that which would be applicable pursuant to the provisions of PILA, the law of such other state applies. According to PILA § 54, the parties may agree on the application of Estonian law after the occurrence of the event or performance of the act from which a non-contractual obligation arose. See also section 1 above.

Economic Loss Caused by GMOs in Finland

Björn Sandvik

I. Special liability or compensation regimes

1. Introduction

In Finland, a special regime for damage caused by GMOs was established in 1995 by the passing of the Gene Technology Act (377/1995). The Act has subsequently been amended significantly, most recently by Law 847/2004 implementing the EC Directive of 12 March 2001 on the deliberate release into the environment of GMOs. (Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001.) The aim of the Gene Technology Act (hereinafter the GTA) is to promote the safe use and development of gene technology in accordance with the precautionary principle and in a way that is ethically acceptable, and to protect human and animal health and the environment when carrying out the contained use or deliberate release into the environment of GMOs (Sec. 1). A liability provision is found in GTA Sec. 36, which reads as follows: 1

> "*Liability for damage*. Compensation for damage in the environment caused by activities referred to in this Act is subject to the provisions of the Environmental Damage Compensation Act (737/1994).
>
> Compensation for personal injury or for damage to property intended for private use or consumption and used by the injured party mainly for such purpose are subject to the provisions of the Product Liability Act (694/1990).
>
> Compensation for other damage caused by activities referred to in this Act is subject to the provisions of the Tort Liability Act (412/1974). The operator is liable to compensate for such damage even if it was not caused wilfully or through negligence.
>
> The provisions of par. 1–3 shall not restrict the right of the injured party to compensation on the basis of an agreement or by virtue of other statutes than those referred to in par. 1–3."

The wording of Sec. 36 and the precise relations between the statutes referred to in it, are perhaps not crystal clear. According to the bill to the GTA, how- 2

ever, Sec. 36(1) will lead to the application of the Environmental Damage Compensation Act (hereinafter the EDCA) in two situations[1]: First, the EDCA is applicable to damage caused by the so-called contained use of GMOs. "Contained use" is defined in Sec. 3 of the GTA as "any activity in which organisms are genetically modified or in which such organisms are cultured, stored, transported, destroyed or disposed of or used in any other way, and for which specific containment measures are used to limit their contact with the general population and the environment and to provide a high level of safety for the general population and the environment". Second, the EDCA is applicable to the deliberate release of GMOs into the environment. "Deliberate release" is defined in Sec. 3 of the GTA as "introduction into the environment of genetically modified organisms without using any specific containment measures to limit their contact with the general population and the environment or to provide a high level of safety for the general population and the environment".

3 It is to be observed that the definition of deliberate release is not restricted to the release of GMOs into the environment for research and development purposes only (e.g. experimental field testing), but is wide enough to cover also releases of GMOs into the environment, for example, for the purpose of commercial cultivation of GM crops.[2] Hence, the EDCA will apply to damage in the environment caused by GMOs irrespective of whether such damage is caused by the contained use of GMOs, (e.g. laboratory tests), by the deliberate release of GMOs into the environment for research or development purposes (e.g. experimental field testing), or by the deliberate release of GMOs into the environment for commercial purposes (e.g. commercial cultivation of GM crops). Prior to the amendment of the GTA by Law 847/2004 implementing Directive 2001/18/EC, however, the definition of deliberate release explicitly covered such release of GMOs into the environment for research and development purposes only.

4 It should be further noted in this context that the EDCA likely could apply to damage caused by GMOs irrespective of Sec. 36(1) of the GTA. According to Sec. 1 of the EDCA, compensation for damage caused in the environment by an activity in a specific area shall be payable. The damage should be caused by "pollution of water, air or land, or noise, vibration, radiation, light, heating or smell, or other comparable disturbances". In the literature, it is recognised that GMOs could be considered a "comparable disturbance" under Sec. 1 of the EDCA[3]. This interpretation is further supported by, for example, an explicit statement in the legislative history to a corresponding provision in the Swedish legislation on compensation for environmental damage[4]. The Swedish legisla-

[1] See Government Bill 1994:349 at 36 37.
[2] Cf. also Art. 2(3) of Directive 2001/18/EC.
[3] See, e.g., *B. Sandvik*, Miljöskadeansvar [Environmental Impairment Liability] (2002) 157 160 with further references.
[4] See *Statens Offentliga Utredningar* (SOU) 1996:103, part 1 s. 629; cf. also, e.g. SOU 1993:27, Ch. 12 and at 699 700. It may be further pointed out that, in a recent Swedish governmental report, existing rules on civil liability have been considered adequate also as regards damage caused by GMOs; see SOU 2007:46.

tion (the Environmental Damage Compensation Act of 1986 which without material changes was subsequently transformed into Ch. 32 of the Swedish Environmental Code of 1998) served as an important model for the drafters of the Finnish EDCA. And damage suffered by, for example, farmers of non-GM crops as a result of commercial cultivation of GM crops is clearly caused both "in the environment" and "by an activity in a specific area" within the meaning of Sec. 1 of the EDCA. Thus, Sec. 36(1) of the GTA is perhaps more of an informative than of a normative nature.

Moreover, an umbrella law on the coexistence of GM and non-GM cultivation is under preparation by the Ministry of Agriculture and Forestry (MAF). A working group report was published in 2005.[5] A bill has not yet been presented. In the report, the working group proposes also a liability regime.[6] In so proposing, however, the working group for some reason fails to take due account of the liability regime already established under Sec. 36 of the GTA.[7] 5

In short, the report recognises that GMO admixture to a proportion exceeding statutory thresholds may launch labelling requirements or impose restrictions on the intended use of the crops. According to the proposal, compensation would be payable for economic losses suffered by farmers of non-GM crops due to such requirements or restrictions, with the exception of minor loss. Claims regarding any other kind of damage or loss (including pure economic loss due to changed consumer preferences or loss of commercial reputation, for example) would be decided under the Tort Liability Act (leading to a weaker protection than under Sec. 36 of the GTA; see infra). Compensation would be payable irrespective of fault through a compensation fund. Contributions to the fund would be made by the state and by farmers of GM crops according to their hectares. However, if a farmer has caused damage by breaching statutory requirements on GM cultivation, the farmer himself (not the fund) would be liable to compensate for the damage on the basis of such unlawful behaviour. Further, the claimant would have to prove that the damage was "probably caused" by the cultivation of a GM crop, that is, full proof of causality would not be required. Finally, some traditional tort solutions such as joint and several liability as well as recourse between several liable persons are also proposed. 6

As will be demonstrated in greater detail below in the present country report, the existing Sec. 36 of the GTA will – except for the proposed compensation fund – lead to at least the same or in several regards to an even better protection than the regime proposed by the MAF working group. See I.3 and II.3 below 7

[5] *Työryhmämuistio* MMM 2005:16. Muuntogeenisten viljelykasvien sekä tavanomaisen ja luon nonmukaisen maataloustuotannon rinnakkaiselon mahdollistaminen Suomessa. Loppuraportti. [Working Group Report MAF 2005:16. Enabling the Coexistence of Genetically Modified Crops and Conventional and Organic Farming in Finland. Final Report.]

[6] See *id.* at 38 40. All details are still open, and the report does not include any draft provi sions.

[7] In the working group report, the liability regime already existing under Sec. 36 of the GTA is not mentioned at all.

regarding the basis of liability, I.2 and II.2 below regarding causality, multiple causes, joint and several liability, and recourse between several liable persons, and I.4 and II.4 below regarding compensable damage.

8 The proposed liability regime seems ill-founded. It seems that the working group was not fully aware of the liability already established under Sec. 36 of the GTA. It is advisable that any further legislative measures should merely aim at perhaps (clarifying and) complementing the existing liability regime with the proposed compensation fund. Among other things, payments from the fund should be possible also in instances where a farmer of GM crops has caused damage by breaching statutory requirements on GM cultivation. The state should, in respect of compensation paid by the fund, acquire by subrogation the rights that the person so compensated has against the person liable for the damage. Any amount of compensation received by the state from the liable person should be reimbursed to the fund. (Cf. also, e.g. Sec. 7 of the Act on the Oil Pollution Compensation Fund (379/1974).) Finally, in considering the need for a compensation fund, regard should be paid also to the possibilities of developing the obligation to obtain liability insurance; see further I.4(f) below.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

9 In addition to showing proof of the damage suffered, the claimant must show that there exists a causal link between the alleged activity and the damage. In environmental cases in particular, however, it is often difficult for the claimant to prove such a causal link. For example, the sources of pollution or other disturbance (such as GMOs) may be multiple and the damage may be spread over both space and time. Consequently, it may require complex, time-consuming and often expensive technical, chemical, biological, medical or other kinds of investigations to determine the causal link. An award of damages can likely include also costs of such (necessary and reasonable) investigations as "other costs" due to the damage (see also I.4(d) below). To the extent that the costs are regarded as law expenses they are allocated in accordance with the rules in Ch. 21 of the Code of Judicial Procedure. In civil cases where settlements are allowed, the losing party generally bears the legal expenses.

10 Further, it may be noted already in this context that in Finland, the right to damages is restricted by the so-called doctrine of adequate causation (cf. "remoteness of damage") as an ultimate limit. This doctrine on unforeseeable, unexpected, far-reaching etc. consequences applies in respect of both the relation between the cause and the (physical) damage and in the latter relation, between the damage and the loss sustained. Some problems involving adequacy are discussed further below in this report (see I.4(b)–(c)).

(b) How is the burden of proof distributed?

The drafters of the EDCA recognised that a lot of the practical significance of the liability rules for environmental damage could be lost if considerable demands were placed on a claimant in terms of proving the burden of the causal link. Consequently, the EDCA contains, in Sec. 3, a special rule that the claimant seeking compensation has to prove that there exists "a probability" of a causal link between the alleged activity and the damage. Thus, full proof of causality is not required under the EDCA. In judging the probability, account shall be taken of, among other aspects, the nature of the activity and the damage, and other possible causes of damage. But it should also be noted that, according to the bill to the Act, "probability" means a rather high probability; in mathematical terms "clearly over 50 per cent"[8]. It has been called into question whether the rule in the EDCA really improves the claimant's position in relation to the result achievable already under the principle of free judgment of proof. Referring to Sec. 59 of the Norwegian Pollution Act, it has been asked whether the EDCA should have been more progressive in protecting the interests of the claimant by a rule reversing the burden of proof.[9] The Norwegian rule concerns situations where it has emerged that pollution which could have caused the damage has occurred but it is unclear whether the damage may have some other cause(s). 11

(c) How are problems of multiple causes handled by the regime?

The EDCA has, in Sec. 2(5), a supplementary reference to the Tort Liability Act (hereinafter the TLA). Ch. 6, Sec. 1 of the TLA provides, among other things, that compensation may be reduced ("adjusted") as is found reasonable if a circumstance other than the fault of the person liable contributed to the injury or damage. By virtue of Sec. 2(5) of the EDCA, this causality rule is applicable also under the EDCA. But since the EDCA imposes a no-fault liability upon the operator of the activity causing damage (see below in I.3(b)), the expression "other circumstance than the fault of the person liable" should be interpreted as "other circumstances unconnected with the activity of the operator".[10] 12

Sec. 8 of the EDCA provides a rule for joint and several liability and recourse (cf. also the rather similar rules in Ch. 6, Sec. 2–3 of the TLA). Persons liable for compensation shall be jointly and severally liable for environmental damage probably caused by them (Sec. 8(1)). Unless otherwise agreed, the joint and several liability for compensation shall be divided equitably, giving due 13

[8] Government Bill 1992:165 at 23.

[9] See, e.g. *P. Wetterstein*, The Finnish Environmental Damage Compensation Act and Some Comparisons with Norwegian and Swedish Law, *Environmental Liability* (Vol. 3, Issue 3) 1995, 41 48, at 45.

[10] See further *B. Sandvik*, Hur strikt är det strikta skadeståndsansvaret enligt lagen om ersättning för miljöskador? [How Strict is the Strict Liability under the Environmental Damage Compen sation Act?], *Tidskrift utgiven av Juridiska Föreningen i Finland* 1998, 544 570, at 563 569.

consideration to the grounds for the liability, the chances of preventing the damage and other prevailing circumstances (Sec. 8(2)). If one (or several) of the persons thus liable has paid compensation over and above his own share, that person has the right to receive from each of the other liable persons what he has paid for their part, of course. According to Sec. 8(3), however, liability for compensation shall not be imposed by a judgment, in a degree exceeding the appropriate share, on a person whose share in inflicting the damage is minor (Sec. 8(3)).

3. Type of regime

(a) If fault based, what are the parameters for determining fault, and how is the burden of proof distributed?

(b) If strict, is there still a set of defences available to the actor?

14 The basis of liability in the EDCA is a rule of strict (no-fault) liability. According to Sec. 7(1) subpar. 1 of the EDCA, the liability is channelled to the operator, that is, the person whose activity has caused the environmental damage. Further, according to Sec. 7(1) subpar. 2, a person who is comparable to the operator can also be held liable under the Act, taking into consideration control, financial aspects etc. For example, a parent company may be held liable for activities of its subsidiary[11]. Moreover, under Sec. 7(1) subpar. 3 the transferee of an activity can be held liable if he knew or should have known about the damage or the disturbance or the risk of it at the time of the transfer.

15 In the Supreme Court decision 1999:124, an independent contractor had undertaken to sandblast the frontage of a hospital building which was owned by an association of municipalities. The contractor – and not the association – was held to be the operator liable under the EDCA for damage caused by dust. In the Supreme Court decision 2001:61, however, a municipality was held to be the operator liable for cracks in a building caused by vibrations from road works executed by an independent contractor. According to Sec. 1(2) of the EDCA, the keeper of roads and other traffic areas shall also be considered to be carrying out activities in a specific area as required by Sec 1(1). It seems that in the latter case, Sec. 1(2) also influenced the interpretation of the term "operator" under Sec. 7. Nevertheless, it is rather clear that, for example, a farmer of GM crops causing damage in the environment would be held liable for the damage as the operator under the EDCA.

16 In Sec. 7 of the EDCA, no "traditional" defences to strict liability are provided. However, it has been held that a force majeure defence should be available, since in Finnish law, it can be regarded a general principle that a force majeure event has the effect of an exclusion of strict liability. But the notion of force majeure should be given a narrow interpretation.[12] For instance, natural

[11] Government Bill 192:165 at 27.
[12] See, e.g. *B. Sandvik* (supra fn. 10) at 544 570.

disasters and acts of terror could amount to force majeure under the Act. Also the bill to the EDCA supports the view that the strict liability rule under Sec. 7 is not absolute. According to the bill, if a third party has trespassed upon the area in which the activity is performed and caused an accident by mischief, the resulting damage is not caused by the operator's activity provided that the operator has not contributed to the damage[13]. However, this example should also be interpreted narrowly.[14]

17 An obligation to tolerate disturbance is laid down in Sec. 4 of the EDCA. According to Sec. 4(1), compensation for environmental damage is payable under the Act only if it is not reasonable to tolerate the disturbance taking into account, among other things, the local circumstances, the situation as a whole that led to the disturbance and how common the disturbance in question is in comparable circumstances. In the Supreme Court decision 2004:89, an owner of a real estate bought in 1995 was held to be under an obligation to tolerate disturbance in the form of dust from an open-cast mine which had been operative in the vicinity since 1968. Vibrations from road works causing cracks in a building were not held to be a tolerable disturbance in the Supreme Court decision 2001:61. According to Sec. 4(2) of the EDCA, the obligation to tolerate disturbance is not applicable to personal injury or property damage that is not minor, neither does it apply to damage caused by criminal or intentional behaviour. In the Supreme Court decision 1999:124, the obligation to tolerate disturbance was not even addressed when awarding FIM 2,600 (= € 437) in damages for property damage. Some scholars have advocated that the obligation to tolerate disturbance should not apply if the damage is caused by negligence.[15] But it is unclear whether a court would accept such an interpretation.[16] It should also be noted in the present context that the tolerance level is not directly linked to consents by authorities. But in deciding whether a disturbance should be tolerated or not, regard shall be had to the content of different environmental consents (nuisance thresholds, measures of health safeguards, etc) as one factor among others[17].

18 As mentioned previously (in I.2(c)), the EDCA has in Sec. 2(5) a supplementary reference to the TLA. By virtue of Sec. 2(5) of the EDCA the TLA rule on contributory negligence is also applicable in environmental damage cases. According to Ch. 6, Sec. 1 of the TLA, if there has been a contribution to the injury or damage from the person sustaining it, the damages may be reduced ("adjusted") as is found reasonable. Naturally, the claimant seeking damages is also under a duty to take such measures as are reasonable in the circumstances to mitigate his loss. If he fails to take such measures, the party liable for the damage may claim a reduction in damages by the amount by which the loss should have been mitigated. Some scholars maintain that failure to mitigate

[13] See Government Bill 1992:165 at 27.
[14] But note in this context also the rule in Ch. 6, Sec. 1 of the TLA; see I.2(c) above.
[15] See, e.g., *P. Wetterstein* (supra fn. 9) 43.
[16] See also *E.J. Hollo/P. Vihervuori*, Ympäristövahinkolaki [The Environmental Damage Com pensation Act] (1995) at 132, who apparently do not accept such an interpretation.
[17] See Government Bill 1992:165 at 15.

loss constitutes contributory negligence under Ch. 6, Sec. 1 of the TLA, while others maintain that the duty to mitigate loss is a duty under general principles of tort law (and of contractual liability).

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

19 Different criteria do not apply with regard to, on the one hand, crop production and, on the other hand, seed production.

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

20 As noted, the EDCA has, in Sec. 2(5), a supplementary reference to the TLA. Thus, the EDCA regulates only some issues of environmental damage liability, while others are left to be decided under the general rules of tort liability laid down in the TLA.

21 However, if the EDCA is applicable to a certain damage event but for some reason damages are not awarded under the EDCA, some commentators hold that compensation for that damage can not be awarded under the TLA.[18] Some support for this interpretation can be read into the statutory language of Sec. 2(5) of the EDCA. But some scholarly opinions hold such an interpretation incorrect, since in certain respects (which were not even addressed by the drafters of the EDCA), it would weaken the claimant's position compared to the situation prior to the EDCA. The objective purpose of the EDCA was to strengthen – not to weaken – the position of the claimant seeking damages.[19] But it should be emphasised that the practical relevance of the TLA will be extremely limited in any case, since the EDCA offers a far better protection to damage victims than the TLA in virtually all respects. Yet, the right to claim damages under the TLA could become of some (albeit limited) importance in situations where, for instance, damages are not awarded under the EDCA on the ground that the disturbance is deemed tolerable under Sec. 4 of the EDCA.[20]

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

22 According to Sec. 5(1) of the EDCA, compensation for personal injury and property damage (including consequential economic losses) is payable pursu-

[18] See, e.g., *E.J. Hollo/P. Vihervuori* (supra fn. 16) 132.
[19] See, e.g., *B. Sandvik* (supra fn. 3) 201 202.
[20] See I.3(b) above on the obligation to tolerate disturbances.

ant to Ch. 5 of the TLA. Thus, in this respect the EDCA has not introduced any changes. However, Sec. (5) of the EDCA further provides that compensation shall also be payable for economic losses unconnected with personal injury or property damage, that is, pure economic losses. Such losses shall be compensated with the exception of minor losses. According to the bill to the EDCA, citizens should not be encouraged to pursue claims for minor losses[21]. But it will remain for the courts to decide what counts as "minor" loss. However, under Sec. 5(1), the exception of minor loss does not apply if the loss is caused by criminal behaviour.

23 According to Ch. 5, Sec. 1 of the TLA, compensation for pure economic loss is payable only where the loss is caused (1) by a criminal act, (2) by a public body in the exercise of its authority, or (3) in other cases, where there are especially weighty reasons for compensating such loss. Thus, Sec. 5(1) of the EDCA has essentially enhanced the claimant's position regarding compensation for pure economic loss.

24 Although of lesser importance with regard to the object of the present study, it may be mentioned that Sec. 5(2) of the EDCA further provides that other damage than damage referred to in Sec. 5(1) shall be compensated to a reasonable amount in view of the time the disturbance or damage lasts and the possibilities the injured party had to avoid or to prevent the damage. This provision allows compensation for non-economic loss, for instance, for noise or smell which has already ceased when the claim is pursued and which has not lead to any costs or other measurable economic losses[22].

25 Moreover, according to Sec. 6(2) of the EDCA, authorities have the right to claim reasonable costs from the person(s) liable for measures undertaken to avert or remedy damage to the environment. Whereas tort law traditionally has been concerned with only individual interests, this provision concerns damage to the environment per se and public (collective) environmental interests.[23] Further, under Sec. 6(1) a private person can also claim costs of necessary measures undertaken to avert the risk of environmental damage which "concerns that person" and to restore the environment. However, this provision concerns individual environmental interests only and it has been held that the rule could have been the same even under Sec. 5(1) of the EDCA[24].

[21] Government Bill 1992:165 at 25.
[22] Government Bill 1992:165 at 26.
[23] Sec. 6(2) of the EDCA has been dealt with in great detail by *B. Sandvik* (supra fn. 3) 298 407, 414 419.
[24] See *B. Sandvik* (supra fn. 3) 292 298.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

(c) Where does the scheme draw the line between compensable and non compensable losses?

26 As previously noted (I.4(a)), compensation is payable also for pure economic loss under Sec. 5(1) of the EDCA. However, it should be noted in this context also that it is held that the EDCA – to be applicable according to Sec. 1 (see I.1 above) – requires that the environment has been physically affected[25]. Thus, it is held that so-called psychical disturbance in the form of, for instance, the anxiety that people living near chemical industries may have due to the potential risk of a chemical release can not be regarded as a "comparable disturbance" under the EDCA. Extending liability under the EDCA to psychical disturbances as such could lead to unexpected and undesirable consequences.[26] On the other hand, if, in the example above, a release of chemical substances actually has occurred and the environment is affected physically then the EDCA is applicable to damage caused by the fear that the disturbance (i.e. the release of chemical substances) may spread[27].

27 Now, turning to the scenario in the present study, if a farmer of non-GM crops suffers loss (e.g. loss of profit) as a consequence of his customers fearing that his products are no longer GMO free because of, for example, the presence of GMO cultivation in the vicinity, that farmer has suffered pure economic loss. But if no actual GMO admixture has occurred in the environment, the EDCA will likely not be applicable. The mere fear of GMO admixture is probably not a disturbance within the meaning of Sec. 1 of the EDCA. It would also be extremely difficult to interpret Sec. 36(1) of the GTA (see above I.1) as extending the applicability of the EDCA to such instances. Moreover, in most cases the farmer's loss would likely not be compensated under the TLA either (even if Sec. 36(3) of the GTA provides a rule of strict liability for damage caused by GMOs if the TLA is also applicable; see I.1 above). As seen above (I.4(a)), the prerequisites for compensating pure economic loss under Ch. 5, Sec. 1 of the TLA are rather restricted. But if an admixture of GMOs actually has occurred in the environment (in the vicinity), the EDCA is applicable and, in principle, compensation is payable under Sec. 5(1) of the Act for the pure economic loss suffered by the farmer of non-GM crops as a result of his customers fearing that his products are no longer GMO free. Further, if a farmer of non-GM crops suffers damage as a result of his own cultivation having been exposed to GMO admixture from the cultivation of GMO crops in the vicinity, compensation for

[25] See *B. Sandvik* (supra fn. 3) 162 168 with further references.

[26] However, it may be noted in this context that the civil liability rules on compensation for environmental damage in, for example, Ch. 32 of the Swedish Environmental Code are also held to cover damage caused by psychical disturbances as such; see e.g. Swedish Government Bill 1985/86:83 at 48.

[27] See also *B. Sandvik* (supra fn. 3) 162 168, in particular at 167.

that farmer's damage is, of course, payable under the head of property damage (irrespective of whether the farmer owns or leases the land). The notion of property damage includes so-called consequential economic loss, that is, economic loss (e.g. loss of profit) as a result of the claimant's property (or proprietary interests) having been damaged.

28 Accepting the right to compensation for pure economic losses also poses the extremely difficult question of how far the right extends. For example, although only one farmer's crops have actually been contaminated with GMOs from the cultivation of GM crops in the vicinity, farmers in a whole region can suffer pure economic losses where consumers fear that the entire region is affected. Further, such stigmatisation may also hit economic interests far beyond the farmers' and possibly even impact the whole food sector in the region (food producers, food retailers etc.), perhaps even the food sector outside the region in question. Needless to say, a non-restrictive attitude could cause large, complicated and unforeseeable compensation issues. In many cases – if the fear has been blown out of all proportion by the media, in particular – the link of causation between the disturbance and the damage may even be too uncertain and indirect to justify an award of damages at all under the EDCA.

29 Moreover, in Finnish tort law, the doctrine of adequate causation (see also above I.2(a)) provides the ultimate distinction between those claims for economic (and other) losses which should be paid and those which should be dismissed as too remote and unforeseeable etc. There is no statutory rule on adequacy. Consequently, it is a highly elastic doctrine full of nuances, which is therefore also difficult to apply. With a certain exaggeration, it is even held that most scholarly opinions on adequacy are acceptable, since by necessity they are vague enough to either allow or dismiss a claim in a concrete case[28].

30 However, from a comparative point of view, it is interesting to note that Ch. 10 of the Finnish Maritime Code of 1994 contains provisions on oil pollution liability. These provisions are mainly based on international treaties; the CLC (Convention on Civil Liability for Oil Pollution Damage, 1969, as amended by subsequent Protocols) and the FC (International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971, as amended by subsequent Protocols). The definition of oil pollution damage also covers pure economic losses from the impairment of the environment. Such losses may hit, for example, commercial fishermen, fish retailers, hoteliers, restaurateurs, shopkeepers, travel agencies etc. who obtain their income from tourism at the seaside or from seaside resorts. The International Oil Pollution Compensation Fund (the IOPC Fund) has developed and adopted criteria concerning the admissibility of claims for pure economic loss. These criteria require a "reasonable degree of proximity" and focus on elements such as the following:

[28] See *H. Saxén*, Adekvans och skada [Adequacy and Damage] (1962) 12.

(1) Geographic proximity between the claimant's activity and the contamination of the environment (e.g. in respect of hoteliers or travel agencies who are not located in the nearest vicinity, but who nevertheless suffer loss of income because tourists shy away from the region as whole).
(2) The degree to which a claimant is economically dependent upon an affected resource.
(3) The degree to which a claimant's business forms an integral part of the economic activity affected.
(4) The extent to which a claimant has alternative sources of supply.[29]

31 It is stressed that each claim should be considered on its own merits, and that "the IOPC Fund should maintain a certain flexibility enabling it to take into account new situations and new types of claims".[30]

32 It would perhaps be tempting to apply similar criteria also under the EDCA (and Ch. 10 of the Maritime Code). However, the criteria adopted by the IOPC Fund have been criticised. Above all, the Fund's criteria may lead to a very extensive liability which is difficult to foresee and therefore also very difficult to administrate. In some respects the IOPC Fund's criteria may lead to arbitrary results. In Finnish law, the starting point is that only those who directly suffer loss have a right to compensation. However, it is in the nature of things that the concept of those who "directly suffer loss" is not entirely clear. Therefore, it has been suggested that, as a rule, claimants with only a contractual relationship to those primarily suffering loss or damage as a result of environmental impairment should not have a right to recover pure economic losses.[31] In this connection, it should be stressed also that tort action is a very expensive and quite often time-consuming instrument for compensating damage victims. Further, as rightly pointed out, "those having indirectly suffered economic losses may find it easier to arrange for cheaper, alternative compensation, for instance, first-party insurance"[32].

33 Personally, I am inclined to support such views[33]. In principle, this would mean that farmers of non-GM crops have the right to recover pure economic losses caused by GMO contamination in the environment, while claims for pure economic losses pursued by claimants with only a contractual relation with those farmers should be dismissed. Still, difficult problems of adequacy will remain as regards the position of those farmers who are not in the nearest vicinity of the GMO contamination, but who nevertheless suffer pure economic losses because consumers fear that the entire region may be affected (provided the

[29] See, e.g., IOPC Fund, FUND/WGR.7/21, 20 June 1994, especially at 8 par. 7.2.30.
[30] See *id*., 8 par. 7.2.32. See also on the criteria, e.g. IOPC Fund 1992, Claims Manual, April 2005 Edition, Adopted by the Assembly in October 2004, especially at 25 30.
[31] See *P. Wetterstein*, A Proprietary or Possessory Interest: A Conditio Sine Qua Non for Claiming Damages for Environmental Impairment, in: *P. Wetterstein* (ed.), Harm to the Environment (1997) 29 54, at 40 41.
[32] *Id*., 41.
[33] Cf. also *B. Sandvik* (supra fn. 3) 255 262.

causal link is established at all in the first place; cf. above). Obviously, liability has to stop at some point. In deciding where that point should be, each claim must be considered on its own merits. It is to be observed also in this context that the further away the claimant/farmer is (geographically as well as in terms of economic dependence) from the GMO contamination, the more difficult it may be for him to prove (even with probability; see I.2(b)) the link of causation, and to prove the alleged economic loss. Thus, to a certain degree the rules on the claimant's burden of proof reduce the need for precise parameters concerning the admissibility of claims[34].

(d) What are the criteria for determining the amount of compensation?

34 According to Ch. 5, Sec. 5 of the TLA, compensation for property damage shall cover reasonable costs of repair of the damaged object, other costs arising from the damage, reduction in value of the property, as well as loss of income and maintenance, that is, consequential economic loss. If repair is not feasible or reasonable, damages shall cover reduction in value and other costs arising from the damage, as well as consequential economic loss.

35 Reduction in value is, in principle, determined by comparing the value of the damaged object before the damage occurred with its value after the damage has occurred. There are no standards laid down in legislation on precisely how the reduction in value shall be calculated. Where appropriate, the calculation may start from private contractual agreements, of course.

36 Further, since compensation is also payable for the "other costs" arising from the damage, indirect costs such as increased overhead costs due to the need to find a new market for products, or to regain a certain position, are recoverable provided the costs are reasonable and necessary.

37 In commercial matters, loss of income (whether consequential or pure economic loss) is usually calculated on the basis of lost production or turnover. Obviously, in this respect too, private contractual agreements may be of relevance.

(e) Is there a financial limit to liability?

38 There is no financial limit to liability under the EDCA.[35] In this context, however, it is to be observed also that Ch. 2, Sec. 1 of the TLA provides a rule according to which the damages may be reduced ("adjusted") if the liability is deemed unreasonably onerous in view of the financial status of the person causing injury or damage and the person suffering the same, and other circumstances. However, if the injury or damage has been caused deliberately, full compensation shall be awarded unless it is deemed that there are special

[34] See also *P. Wetterstein* (supra fn. 31) 43.
[35] As regards the Environmental Damage Insurance Act, see (f) below.

reasons for a reduction in the damages. This rule is applicable also under the EDCA by virtue of Sec. 2(5) of the Act.

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

39 The EDCA does not deal with insurance questions. However, the Environmental Damage Insurance Act (81/1998) provides rules on compulsory environmental damage insurance.

40 According to Sec. 1 of the Environmental Damage Insurance Act (hereinafter the EDIA), compensation shall be paid under this Act for environmental damage as referred to in the EDCA, caused in Finland by activities in Finland, and for costs arising from the prevention of such damage and from restoring the environment so damaged, provided that: (1) it has not been possible to collect such compensation in full from the party liable to compensate for the damage under the EDCA (see I.3(b) on the liable party under the EDCA) and no compensation can be collected under the party's liability insurance, if any; or (2) it has not been possible to identify the liable party.

41 Sec. 4 of the EDIA provides that an environmental damage insurance policy can be issued by insurance companies which are authorised to engage in insurance business falling under non-life insurance class 13 in Finland under the Insurance Contracts Act (543/1994) or the Act on Operations on Foreign Insurance Companies in Finland (398/1995). Further, no insurer engaging in insurance operations covered by the EDIA may refuse to issue environmental damage insurance.

42 The maximum compensation payable under the EDIA for one insurance event is € 5 million, and compensation payable for two or more events reported during one insurance period (which equals one calendar year; Sec. 5(2)) shall not exceed a total of € 8.5 million (Sec. 15).

43 According to Sec. 2 of the EDIA, any private corporation whose operations involve a material risk of environmental damage or whose operations cause harm to the environment in general shall be covered by insurance against loss compensable under the EDIA. By virtue of Sec. 2 of the EDIA, further provisions on the obligation to insure have been issued by Decree 717/1998. In Decree 717/1998, the obligation to insure under the EDIA has been linked to such private corporations whose activities require consent by specified authorities under various environmental statutes. According to Ch. 5 of the GTA, the operator shall apply for consent for the deliberate release of GMOs (and for the other activities referred to in the GTA) from the Board for Gene Technology, if the GMOs are intended to be released within the territory of the state of Finland. However, Decree 717/1998 does not refer to a consent by the Board for

Gene Technology under Ch. 5 of the GTA. Thus, at present, it seems that the deliberate release of GMOs into the environment (or any other activity referred to in the GTA) does not require compulsory insurance pursuant to Sec. 2 of the EDIA and Decree 717/1998, although such release of GMOs requires consent by an authority under the GTA. This may be considered a loophole in the present regime on compulsory environmental insurance.

It is advisable that the obligation to insure under the EDIA should be rewritten in a more consistent and comprehensive way. It may be noted in this context that the bill to the EDIA implies that – in the Decree to be issued by virtue of Sec. 2 – the obligation to insure shall be regulated on the basis of, on the one hand, a corporation's branch of business and, on the other hand, its turnover. In so doing, the obligation to insure shall be linked to different branches of business on the basis of the classification of business branches made by the National Centre of Statistics.[36] This is clearly not the regulatory technique in Decree 717/1998. 44

However, the establishment of a compensation fund could, of course, eliminate or at least minimise the shortcomings of the obligation to insure under the EDIA (see I.5 below). 45

(g) Which procedures apply to obtain redress?

Normal civil law procedures apply to obtain redress. Thus, the claim is handled in a civil court under the rules of the Code of Judicial Procedure. Decisions of the courts of first instance (the District Courts) may be appealed to one of the 6 Courts of Appeal, and decisions of the Courts of Appeal may be further appealed to the Supreme Court provided that leave is granted by the Supreme Court. Leave may be granted, for example, if the case involves a new legal issue on which a precedent would be needed, or if the decision of a lower court was based on an error of fact or law. 46

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

Injunctive relief is available under Sec. 22 of the GTA. If it is found after the submission of a notification or an application in accordance with the GTA that a GMO can cause considerable harm to human or animal health or to the environment, the Board for Gene Technology may on its initiative or on the initiative of the supervisory authority[37] restrict the deliberate release of GMOs, or prohibit the operator from continuing a procedure which violates the provisions of the GTA or provisions issued by virtue of it. 47

[36] See Government Bill 1997:82 at 11.

[37] The National Product Control Agency for Welfare and Health, the Finnish Environment Institute, or the Plant Production Inspection Centre depending on the matter; see Sec. 5 g h.

5. Compensation funds

48 No compensation funds are set up. However, a compensation fund has been proposed; see I.1 above.

6. Comparison to other specific liability or compensation regimes

49 As seen above, liability is conditioned by the general rules on environmental damage liability laid down in the EDCA.

II. General liability or other compensation schemes

1. Introduction

50 Several of the questions under this part of the study have already been answered above by relating liability under the EDCA to liability under the general rules of torts laid down in the TLA. Therefore, and since the EDCA will apply, I will briefly comment on only a few questions. In other respects, I refer to the corresponding answers above in part I.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

51 See I.2(a) above.

(b) How is the burden of proof distributed?

52 Under the TLA, the claimant seeking damages has the burden of proof. Full proof is required, but the principle of free judgment of proof applies; cf. I.2(b) above.

(c) How are problems of multiple causes handled by the general regime?

53 See I.2(c) above regarding Ch. 6, Sec. 1 of the TLA. Ch. 6, Sec. 2–3 of the TLA also provides for rules on joint and several liability and recourse rather similar to Sec. 8 of the EDCA; see I.2(c) above. The most notable difference is that the TLA lacks a provision corresponding to Sec. 8(3) of the EDCA.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

54 The basis of liability in the TLA is a rule of fault liability. Thus, a person who deliberately or negligently causes injury or damage to another shall be liable for damages (Ch. 2, Sec. 1(1)). As a rule, the claimant seeking damages also has the burden of proof concerning the fault element. But in some court cases the burden of proof has been reversed so that the operator of the alleged offending activity is under an obligation to prove that the damage had not been caused because of fault on his side in order to be relieved from liability ("exculpatory fault liability"). One example is offered by the Supreme Court decision 1989:7 concerning liability for damage caused by a sudden release of sulphur containing soot from a thermal power station. There are also numerous cases in which courts have found the tortfeasor strictly liable without direct statutory support[38]. Unlike the situation in some jurisdictions, however, no general rule of strict liability for "dangerous activities" is established in Finnish case law (although several cases point in that direction).

55 However, it should also be recalled in this context that Sec. 36(3) of the GTA (cit. supra I.1) also provides a rule of strict liability if a certain case is to be decided under the TLA (e.g. non-contractual product liability cases which do not fall under the Product Liability Act; see also Sec. 36(2) of the GTA).

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

56 Sec. 18 of the Act on Neighbour Relations of 1920 provides a rule on strict liability for certain nuisances referred to in Sec. 17 of the Act[39]. However, although Secs 17–18 of the Act on Neighbour Relations are still in effect, the damages provision in Sec. 18 has to a large extent been superseded by the EDCA. After the EDCA entered into force, the damages provision in Sec. 18 of the Act on Neighbour Relations became applicable to "in-door relations" only (e.g. between neighbours in a high-rise block).

[38] See, e.g., Supreme Court decision 1995:108 concerning damage caused by leakage from an underground petrol tank. See also, e.g., the following Supreme Court decisions: 1957 II 10, 1963 II 93, 1982 II 70, 1982 II 94, 1993:114, 1994:122, and 2000:72 (explosions and blastings); 1969 II 42 and 1997:48 (fires); 1998:87 and 1998:88 (asbestos); 1990:55 and 1991:156 (defective machines); 1995:53 (mass vaccination against polio).

[39] Sec. 17 corresponds to the enumeration of disturbances in Sec. 1 of the EDCA; see I.1 above.

4. Damage and remedies

57 See I.4 above.

III. Sampling and testing costs

58 As previously indicated (see I.4(f)), activities referred to in the GTA require the consent by the Board for Gene Technology. The Board may include in the consent, conditions relating to the monitoring duty and risk management duty as are laid down in the GTA (see, e.g. Secs 11 and 18 as regards deliberate release of GMOs into the environment). Further, under Sec. 9 of the GTA, operators are under a general duty to obtain any such information on the properties of genetically modified organisms and their effects on health and the environment as is reasonably accessible and adequate for fulfilling the obligations prescribed in the GTA and in any provisions laid down by virtue of it. It seems that the costs of the measures will be distributed accordingly. Further, in Regulation 270/2007, more detailed provisions are laid down on fees for certain measures taken by authorities pursuant to the GTA.

IV. Cross-border issues

59 Jurisdiction will be allocated in accordance with the so-called Brussels Regime. This Regime consists of the following instruments:

(1) The Brussels Convention (Convention of 27 September 1968 on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters).
(2) The Lugano Convention (Convention of 16 September 1988 on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters).
(3) The Brussels I Regulation (Council Regulation (EC) No 44/2001 of 22 December 2000 on Jurisdiction and the Recognition and Enforcement of Judgments in Civil and Commercial Matters).

60 The Brussels I Regulation is applicable where the defendant is domiciled in a member state of the EU, except for Denmark. The Brussels Convention is applicable where the defendant is domiciled in Denmark. The Lugano Convention is applicable where the defendant is domiciled in Iceland, Norway, or Switzerland.

61 The basic principle in matters relating to tort liability is that a person domiciled in a member state may, in another member state, be sued in the courts of the place where the harmful event occurred or may occur (see Sec. 2, Art. 5(3) of the Brussels I Regulation). If the event giving rise to damage occurs in one state and the damage in another state, the harmful event has been interpreted to occur in both states. Consequently, the claimant has the right to choose among the competent courts.[40]

[40] See, e.g., ECU 21/76, *Handelskwekerij G.J. Bier B.V. v Mines de Potasse d'Alsace S.A.* [1976] ECR 1735, regarding the Brussels Convention.

62 The Brussels Regime does not regulate the choice of law. In Finnish law, there are no generally applicable statutory provisions on the choice of law in cross-border cases involving tort liability. However, the principle of lex loci delicti commissi has been established. Further, it is widely held that the claimant has the right to choose between the law of the state in which the event giving rise to damage occurred and the law of the state in which the damage occurred (cf. also above regarding jurisdiction). Obviously then, the claimant will choose the law which is more favourable to himself. These principles will, of course, apply also with regard to the EDCA[41].

63 In this context, however, regard should be paid also to the new Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations ("Rome II"). This Regulation shall apply from 11 January 2009 (Art. 32). For the purpose of this Regulation, "Member State" shall mean "any Member State other than Denmark (Art. 1(4)). But it should be noted also that this Regulation has universal application: "Any law specified by this Regulation shall be applied whether or not it is the law of a Member State" (Art. 3). Unless otherwise provided for in this Regulation, "the law applicable to non-contractual obligations arising out of a tort/delict shall be the law of the country in which the damage occurs irrespective of the country in which the event giving rise to the damage occurred and irrespective of the country or countries in which the indirect consequences of that event occur" (Art. 4(1)).

[41] Cf. also, e.g., *E.J. Hollo/P. Vihervuori* (supra fn. 16) 274.

Economic Loss Caused by GMOs in France

Simon Taylor

I. Special liability or compensation regimes

1. Introduction

A government bill which includes a special compensation regime for producers of non-GM crops contaminated by GM organisms was adopted by the French Senate on 8 February 2008[1]. At the time of writing in February 2008, it is awaiting debate in the National Assembly. 1

The bill, as adopted by the Senate, seeks to streamline procedures relating to the evaluation of risks, the authorisation of dissemination and the surveillance of GM production which has already been authorised. It proposes to establish a *Haut Conseil des biotechnologies* to fulfil this role[2]. This independent Authority will act as an advisory body to the government on issues relating to biotechnology. It will also be responsible for evaluating risks posed by the confined use or voluntary dissemination of GM organisms, for proposing measures to avoid or limit those risks, and will produce an opinion on all applications for authorisation. 2

The bill includes a compensation regime for farmers who suffer economic loss as a result of the contamination of their crops by neighbouring GM crops[3]. These provisions are to be inserted in the *Code rural*. The bill provides that GM farmers are to be strictly liable for certain economic losses suffered by other farmers[4] as a result of the contamination of their crops by genetically 3

[1] This bill replaces, and slightly modifies, the liability regime which had been proposed in a previ ous bill in 2006. That bill, adopted by the Senate, was withdrawn before being presented to the National Assembly, following the presidential and parliamentary elections of 2007.

[2] Article 2 *Projet de loi*. The High Council is to be comprised of a scientific and a lay committee. The members of the scientific committee will be geneticists, public health specialists, agrono mists, lawyers, economists and sociologists. The members of the lay committee will be repre sentatives of associations and professional organisations, together with members of the National Ethics Committee, and two Members of Parliament.

[3] Article 5.

[4] Including beekeepers.

modified organisms which have been authorised to be put on the market[5]. The provisions state that the introduction of the new liability rules does not prevent the farmer of the contaminated crop from bringing an action for damages on any other basis in the courts against GM farmers, distributors and those possessing a licence to put GM products on the market.

4 Every farmer producing GM crops which have been authorised to be placed on the market must provide a financial guarantee destined to cover his liability under the new regime. In practice, in most cases, this will take the form of liability insurance[6].

5 In order to be entitled to compensation, the farmer will have to show the following:

- The contaminated crop was intended at the time it was sown either to be sold as a product not subject to GM labelling requirements, or to be used to produce such a product;
- The labelling of the contaminated crop has been made compulsory under Community rules on labelling products containing genetically modified organisms;
- The affected crop comes from a parcel of land that is situated near ("*à proximité*") the genetically modified variety concerned;
- The affected crop was grown in the same cultivating season as the genetically modified variety.

Secondary legislation will provide further precision on these four points, particularly, we can imagine, with respect to the notion of "proximity".

6 It will be for the farmer who is applying for compensation to establish these conditions. He will thus have to show that the contaminated crops come from a field near the parcel of land where GM crops are being cultivated and also that the contaminated crops come from the same year of production as the GM crops concerned. Apart from establishing the existence of these conditions, the applicant will not have to show any causal link between the cultivation of GM crops and the contamination.

7 The compensation will represent the depreciation in value of the product, corresponding to the difference in sale price of the crops subject to labelling, as compared to their sale price if they had not been subject to GM labelling requirements. However, compensation for no other types of loss is provided for under the scheme. On this basis, the victim will have to seek compensation for

[5] Article 21.

[6] The 2006 bill had proposed the setting up of a guarantee fund financed by a levy on GM crop producers. This fund was to be established for a temporary five year period in order to make up for an initial lack of availability of insurance cover. The government considers that insurers are now in a position to offer adequate cover, and that sufficient alternatives such as bank guarantees and voluntary risk funds amongst GM producers exist. *Rapport de la commission des affaires économiques*, 29. 1. 2008.

any other economic loss through the courts, relying on general liability rules. As we have mentioned, the bill does specifically provide that a farmer who seeks compensation under the scheme for the devaluation of his crop may also seek remedies under general liability rules for any other loss incurred. The bill makes no mention of the availability of injunctive relief.

No reference is made in the bill to problems of multiple causation. 8

The bill also provides[7] that the sowing, harvesting, storage and the transportation of authorised GM crops are subject to technical conditions, particularly with respect to the distance between crops and their isolation. These distances will be set for each particular crop type by the agriculture ministry, following consultation with the High Council and the environment ministry. The bill goes on to provide that the administrative authorities will have the power to order the destruction of crops where the conditions are not complied with. 9

The bill introduces criminal offences[8]. Non-compliance with the conditions with respect to minimum distances, and refusal to comply with an order for destruction, are punishable by a two year prison sentence and a € 75,000 fine. The obstruction of inspections and other actions designed to ensure compliance is punishable with six months imprisonment and a fine of € 7,500[9]. 10

2. Comparison with other specific liability or compensation regimes

A number of special liability and compensation regimes exist in France, but each is specific to its own area of liability and compensation, and none of the schemes fit into a broader system. This dissipation of liability and compensation rule is criticised by certain French doctrinal writers[10]. A specific liability regime for damage caused by defective products was introduced in France as a result of the national transposition of the 1985 Product Liability Directive. In other areas, statutory compensation schemes have been introduced. This is the case for industrial accidents, for victims of serious crimes and terrorist attacks, and for road and medical accidents. Compensation funds have also been established to compensate damage caused in very specific circumstances: for victims of HIV and Hepatitis C from infected blood transfusions, and for victims of asbestos. 11

II. General liability or other compensation schemes

1. Introduction

There is currently no legislation in force providing for compensation for economic loss suffered by farmers as a result of contamination of their crops by 12

[7] Article 3.
[8] Article 4.
[9] Article 22.
[10] See, for example, *Ph. Brun,* Responsabilité civile extracontractuelle (2005) 522.

GM crops. Any liability will therefore be based on general civil and administrative liability principles. To the best of our knowledge, there has been no decision of the French courts on this particular question. This issue has also been very little considered by doctrinal writers. Some analysis of the potential liability of producers, farmers and distributors for personal injury caused to consumers as a result of eating defective GM food exists, but these rare articles only refer at best in passing to the question of economic loss.

13 As has already been stated, the 2008 bill proposes that, for any loss not covered by the proposed legislation, the farmer will retain the possibility of seeking compensation through traditional liability rules.

14 Different jurisdictions will apply depending on whether the action is brought against a private or a public body. Actions against private defendants will be based on private law principles and brought in the civil courts, whilst actions against public entities will be subject to administrative law principles and brought in the administrative courts.

2. Causation

15 Normal principles of causation will be applied to this question. It is for the claimant to establish the existence of a causal link between the act or omission generating liability and the economic loss. Therefore, there will be no liability where the victim cannot establish that the harm would not have occurred anyway in the absence of any contamination by GM crops.

16 Whilst in principle the claimant must establish the existence of a causal link with certainty, the French courts often adopt a flexible approach. They are thus willing to accept the existence of a causal link where there are shown to be "serious, specific and concordant"[11] indications of such a link.

17 Similarly, the courts on occasions proceed by elimination. The causal link is presumed by the fact that there is no other apparent cause of the harm. This approach has been used to establish the causal link between contamination by the Hepatitis C virus and blood transfusions. Blood transfusion centres have been found liable on this basis where the victim shows that the contamination occurred consecutively with the blood transfusion and that he was not within a category of patients having a high risk of contamination[12]. Using the same approach, the courts have also on occasions allowed claims where walls have collapsed or greenhouses smashed as a result of sonic booms from aeroplanes[13].

[11] "Graves, précises et concordantes" *Cour de cassation, 2ème chambre civile* (Civ. 2e) 14. 12. 1965, *Recueil Dalloz* (D.) 1966, 453; *Cour de cassation, première chambre civile* (Civ. 1re) 24. 1. 2006, *Juris-classeur périodique* (JCP) G II 10082, note *L. Grynbaum* (causal link between growth hormones and Creuzfeldt Jacob disease).

[12] Civ. 1re 10. 6., 2. 7., 10. 7. 2002.

[13] Civ. 2e 29. 4. 1969, D. 1969, 534.

Thus, in such cases, the courts are willing to accept the existence of a causal link by the presence of a high degree of probability of such a link.[14] 18

In certain cases, the courts even impose liability without strict proof of causation, on the basis of the creation of a risk of damage[15]. In such cases, the courts have found the defendant liable on the basis that, voluntarily or by negligence, he has created a situation which is objectively dangerous and as a result the victim has suffered damage which is the foreseeable consequence of the creation of the risk. The application of this principle tends to be restricted to cases where the creator of the risk has committed a fault[16]. It is therefore possible that the French courts may use such a technique where it is established that the GMO farmer failed to apply proper segregation measures for example. 19

Where there are several sources of the contamination, liability will be joint and several. The claimant will therefore be able to take an action against any one of the producers who will then have a recourse action against the other producers of GM crops[17]. Where there are a number of potential sources of contamination but it is uncertain which of the producers caused the damage to the claimant's crop then the position is more difficult. The French courts have been prepared to recognise a causal link in cases where the claimant has been injured by a bullet shot by any one of a number of hunters[18]. In such cases, the courts have been willing to impose liability on all the hunters for the full loss incurred. Liability on occasions has been based on the finding that as a group, the hunters were collectively in control of the "wave" of bullets that were shot. Alternatively, and more convincingly, liability has been found on the basis that it was the organisation of the hunt which had caused the loss and all the defendants were each individually responsible for this defective organisation. It would therefore seem difficult to apply this technique to the situation in question since the courts in the hunting cases have imposed liability effectively on the basis of some form of cooperation or action as a group by the defendants. However, the courts have clearly used artificial solutions here in order to ensure liability for fault. It does therefore indicate the willingness of French courts to adopt a flexible approach to such issues in appropriate cases. 20

[14] *J. Flour/J.-L. Auber/E. Savaux,* Droit civil. Les obligations. Le fait juridique (2005) 163.
[15] *G. Viney/P. Jourdain,* Traité de droit civil. Les conditions de la responsabilité (2006) no. 369.
[16] Civ 2e 11. 3. 1976, JCP 1976, IV, 157; *Cour de cassation, 3ème chambre civile* (Civ. 3e) 2. 12. 1980, JCP 1981, IV, 69.
[17] For example, *Tribunal de grande instance* (TGI) Bordeaux 28. 2. 1968: a company was found liable for damage to the claimant's fish stocks even though the damage was partly due to efflu ent coming from neighbouring houses.
[18] Cass. civ. 2e 2. 4. 1997, *Bulletin des arrêts de la Cour de cassation, chambres civiles* (Bull. civ.) II, no. 112; Cass. civ. 2e 5. 6. 1957, D. 1957, 493, note *R. Savatier.*

3. Standards of Liability

(a) Contractual liability

21 A farmer who can establish that seeds sold to him were contaminated may be able to rely on an action for breach of contract against the seller based on hidden defects (*vice caché*) under art. 1641 civil code. This action allows the claimant to recover for loss of value and damages for consequential loss caused by the unfitness of the goods for their normal use. In order to succeed, he will have to show that the defect was not one that he would have been expected to discover at the moment of purchase.

22 Under art. 1604 civil code, the farmer will also potentially have a claim for lack of fitness for the particular purpose for which the seeds were sold under the contract if it was made clear that the buyer wished to purchase seeds free of GM contamination, or with a lower level of contamination than those sold. Again, the buyer in this case would be entitled to compensation for the reduction in value, and damages for consequential loss.

(b) Liability for fault under art. 1382 civil code

23 Article 1382 of the civil code imposes liability in tort for harm caused by fault. An action could potentially be brought on this basis where an unauthorised dissemination of GM organisms has been made, or where the conditions imposed by the licence have not been respected. Where there are clearly established statutory rules defining the required conduct for GMO agriculture, fault will be established on the basis of non-compliance with these rules.

(c) Article 1384 1 of the civil code

24 Article 1384-1 of the civil code deals with liability for harm caused by inanimate objects. The defendant will be liable where he has control (*garde*) of the object, and the claimant shows that there is a causal link between that object and the damage. This article has been used by the courts to impose liability without fault, and even without evidence of defect, provided that the object (in this case, the genetically modified organism) has had an active role in the damage caused. A GM farmer could therefore be considered as the person in control (*le gardien*) of the genetically modified organisms which have caused damage to the neighbouring crops by contaminating them and thus reducing their economic worth. The courts have in this way imposed liability on defendants for damage caused by pollution. Hence, a company producing chemicals was found liable on the basis that it had control over the gas that was emitted from its factory[19], and another was found liable on the same basis for pollution caused by emissions of cadmium and lead

[19] Cass. civ. 17. 12. 1969.

particles[20]. In general however, the French courts have been reluctant to impose liability on this basis in cases of environmental pollution. This reluctance is perhaps due to the fact that the rules are too favourable to the victim since he needs to establish neither the fault of the defendant, nor the presence of an abnormal level of disturbance or interference[21].

(d) Troubles anormaux du voisinage (Nuisance caused by neighbours)

Liability is perhaps more likely to be based on an action for *troubles anormaux du voisinage*. An action on this basis applies where the claimant can establish the existence of an unreasonable level of nuisance caused by a neighbour. Courts initially based liability on art. 1382 of the civil code but now recognise *troubles du voisinage* as an independent legal principle. The claimant is not required to establish any fault[22]. The disturbance or nuisance must be continual or at least repetitive, and it must be considered by the court to be unreasonable or excessive. Liability can be imposed even though the defendant has obtained authorisation from the relevant administrative authorities for his activity[23]. 25

This principle is applied inconsistently by the courts. In some cases, the judge assesses the unreasonable nature of the trouble by reference to the damage caused, and on other occasions by reference to the behaviour itself.[24] 26

Examples illustrate the relevance of these principles to the case in hand. Thus, the Paris Court of Appeal found a farmer liable for *troubles du voisinage* where a treatment of crops using hormones had led to the deterioration of neighbouring lettuce crops[25]. In the same way, a cement manufacturer was found liable for the damage to neighbouring crops where the leaves of the claimant's crops were found to be covered with a fine film of grey dust, which prevented efficient photosynthesis and thus restricted growth.[26] 27

(e) Articles 1386 1 to 1386 18 civil code

Articles 1386-1 to 1386-18 of the civil code incorporate the 1985 Product Liability Directive into French law. Unlike the Directive, the French legislation does not restrict damage to physical injury and damage to consumer goods, and includes damage to goods owned by a business. Harm to non-GM plants 28

[20] *Cour d'appel* (CA) Douai 25. 4. 1991. *Prieu*, 921, *G. Viney,* Les principaux aspects de la res ponsabilité civile des entreprises pour atteinte à l'environnement en droit français, JCP 1996, 3900, no. 10.

[21] *G. Viney* (supra fn. 20) 41.

[22] Cass. civ. 23. 3. 1982, D. 1983, *Informations rapides Recueil Dalloz* (IR) 18, obs. *A. Robert*; Civ. 2e 9. 11. 1986, Bull. civ. II, no. 172.

[23] Cass 2e 22. 10. 1964, a manufacturer of castor oil was found liable despite the fact that he had obtained the relevant administrative authorisation for his activity. (*G. Viney/P. Jourdain*, supra fn. 15, no. 952.)

[24] *M. Prieur*, Droit de l'environnement (2004) no. 1159.

[25] CA Paris 8e chambre, 26. 6. 1980, *jurisdata* no. 098444.

[26] CA Montpellier 11 May 1983, *jurisdata* no. 600730.

and the economic loss which results could therefore potentially fall within the French product liability legislation. However, it would seem difficult to apply the French product liability rules to the situation in hand since: (1) it is difficult to see how in the majority of cases a GM plant or the genes in that plant could be considered defective. A product is defined as defective under the legislation where it does not meet the level of security that people generally are entitled to expect. It would seem very unlikely that a court would find a defect merely on the basis that there has been cross-pollination; and (2) the European Court of Justice has made it clear that the 1985 Directive is a maximum harmonisation measure, and on that basis the French provisions may be argued to contravene Community rules.

(f) Liability of administrative authorities

29 The administrative authorities could potentially be liable for fault in a number of circumstances, either upon the failure to attach adequate conditions to an authorisation, or upon the failure of the authorities to use their powers to enforce regulations and conditions of exploitation. In such cases, any action by a claimant would be brought before the French administrative courts, and liability would be based on fault, applying administrative law rules.

4. Damage and remedies

30 The basic rule applicable with respect to the payment of damages is that they are intended to compensate for the entire loss suffered by the claimant. The court therefore looks to place the victim in the position he would have been in if the act giving rise to damage had not taken place.

31 The farmer whose crop has been contaminated will be entitled to compensation for any loss of profit he may suffer as a consequence. The loss of profit will be calculated on the basis of the reduced sale price as compared to the price the product would have fetched at the time of sale if it had not been contaminated, or the loss of market value at the time of judgment. French courts are very flexible with respect to the nature of the loss which they consider recoverable[27]. Hence, not only direct financial loss based on the reduction in value of the contaminated crop, but also more indirect losses such as the longer-term cost to the business will also be compensated provided that these can be established with sufficient certainty on the basis of expert studies. Provided these can be linked to the contamination, the increased overhead costs due to the need to find a new market for the products, or to regain producer status could be compensated on this basis. There is equally nothing to prevent damages from being awarded to compensate the non-GM farmer for the expense of sampling and testing costs, provided of course that there is a corresponding basis for liability and an appropriate causal link.

[27] *G. Viney/P. Jourdain* (supra fn. 15) 30 33.

There would appear to be several obstacles to an action brought by a farmer to claim for the losses incurred as a result of a reduction in demand by consumers due to the mere fear of GM contamination. Firstly, in order for liability of the GM farmer to be engaged, the claimant would have to establish a basis of liability: liability would not be incurred simply on the basis of the presence of GM crops in the area. Secondly, the claimant would have to establish a causal link between the act or omission generating liability and the loss incurred, and such a link would presumably become increasingly difficult to establish the further the GM crop is geographically from the non-GM crop. It could be argued by the defendant that his act or omission did not actually cause the claimant's loss if the reduction in value was due to the general fear of possible contamination due to the presence of GM crops in the area, and the particular act or omission of the defendant made no difference to this, although the courts may be willing to recognise a causal link if an act or omission of the particular GM producer at least contributed in part to the drop in consumer demand. Finally, the farmer would face the difficulty of establishing that his reduction in profits is due to the publics' fear of contamination, and the quantification of such loss is likely to pose problems. 32

Under general liability regimes, there is no duty on the producer to take out liability insurance. 33

III. Sampling and testing costs

There are no specific rules as to who is to bear sampling and testing costs. Under art. 212-1 of the consumer code, the person responsible for putting the product on the market is required to ensure the compliance of the product with its description. Contractual rules also impose a guarantee of fitness for purpose and absence of defect on the seller. The supplier will therefore in certain circumstances need to arrange for the seeds or crops to be tested in order to ensure compliance, although this will also obviously depend on the specific terms of the supply contract. Such obligations will be particularly onerous on farmers who wish to sell their crops as "organic", which may require a very low or even zero level of contamination. Where there is a risk of contamination, the farmer may also be obliged to arrange sampling and testing to ensure compliance with any labelling requirements. 34

Where the non-GM farmer is able to establish a fault of the GM crop producer, or an alternative basis for liability, and that there is a causal link between this generating act or omission and the contamination or the need to test the crops, then the farmer could presumably claim compensation for this expenditure from the GM crop producer. 35

IV. Cross-border issues

There are no special jurisdictional or conflict of law rules in force or planned in France on this question. According to French conflict of law rules, the law applicable will be the law of the place where the tort has occurred (*lex loci* 36

delicti)[28]. However, in cases of cross-pollination, such a rule appears ambiguous since it is not clear whether it refers to the place where the tortious act (*fait générateur*) took place, or to the place where the damage occurred. Recent decisions of the *Cour de cassation* indicate that either the place of the tortious act, or the place of the damage may apply, depending on the circumstances of the case. The court will choose the place which has the greatest link or connection with the events. This will most likely be the place where the damage (i.e. here, the contamination) occurred[29].

37 The Brussels I Regulations will apply to the question of jurisdiction. The claimant will therefore have the choice as to whether to bring the action in the jurisdiction of the defendant's place of residence, or in the jurisdiction where the harm took place.

[28] Cass. civ. 25. 5. 1948, *Revue critique de droit international privé* (Rev. cr.) 1949, 89.
[29] Cass. civ. 1re 11. 5. 1999; Cass. civ. 1re 28 oct. 2003. *T. Vignal,* Droit international privé (2005) 216.

Economic Loss Caused by GMOs in Germany

Jörg Fedtke

I. Special liability or compensation regimes

1. Introduction

In 1990, Germany introduced a special legal regime for GMOs, the so-called *Gentechnikgesetz*, which was subsequently amended on several occasions.[1] It contains the general legal framework for the development, production or use of GMOs. Like most other German statutes dealing with dangerous objects and/or activities, the *Gentechnikgesetz* thereby establishes a strict form of delictual liability (so-called *Gefährdungshaftung*).[2] These rules, however, only apply to a limited number of facilities in which GMOs are developed, produced, multiplied, stored, destroyed or moved within the physical confines of a given research or special production site[3] as well as any other activities for which a permission to circulate particular GMOs *for the general use by others* has not yet been granted.[4] Crucial to the understanding of the current situation in Germany is thus the distinction between, on the one hand, GMOs which can potentially contaminate other crops but are nevertheless used or handled on the basis of such a general permission (so-called *Umgang*[5]) and, on the other, those for which such a permit has not been issued or which are put in only limited circulation and *without* permission to make offspring or reproductive material such as seed available to others.[6] Only the second group of facilities or activities, which have in common the fact that the GMOs are still isolated from wider circulation, are subject to the strict liability regime of the GenTG and this mainly covers laboratories conducting research and development within 1

[1] *Gentechnikgesetz* (GenTG) of 20 June 1990, *Bundesgesetzblatt* (BGBl) I 1990, 1080 ff. Major amendments occurred in December 1993 (BGBl I 1993, 2066 ff.), December 2004 (BGBl I 2005, 186 ff.) and March 2006 (BGBl I 2006, 534 ff.).

[2] §§ 32 ff. GenTG.

[3] So called *gentechnische Anlage*.

[4] See § 2 GenTG. §§ 7 ff. GenTG establish the requirement of a permit for facilities of this kind. §§ 14 ff. GenTG establish the requirement of a permit to set free or market particular GMOs.

[5] § 3 no. 6a GenTG.

[6] So called *erstmaliges Inverkehrbringen*. *W. Lülling/G. Landsberg*, in: *W. Eberbach/P. Lange/M. Ronellenfitsch*, Recht der Gentechnik und Biomedizin (44. *Ergänzungslieferung* 06/2004) § 32 GenTG, no. 55.

closed facilities, including the sites on which GM crops are tested (so-called *Freisetzungen*), but also individuals or companies who for the first time put GMOs into circulation on the basis of a limited permit which does not allow them to be made available to others for (re)productive purposes.[7] Once GMOs are legally circulated for general use, including (re)production, they move out of the special liability regime established by the GenTG.

2 The issues raised in this study focus on such *subsequent* use of genetically modified seed and the production of GM crops by farmers. These will in all likelihood be GMOs which have already been licenced for general use by others, as farmers cannot themselves (unlike the operators of research facilities or seed producers) apply for the required permits to develop, test or put new GMOs into (limited) circulation.[8]

3 Farmers raising crops from such authorised seed will, however, be subject to the general rules of the German Civil Code (*Bürgerliches Gesetzbuch*[9]) and here, more specifically, to the provisions protecting the property interests of their neighbours (§§ 903 ff. BGB). The application of these rules to damage caused by GM crops will be discussed in more detail below.

4 This apparently neat distinction between, on the one hand, the general use of permitted GMOs (property law and the general rules of tort law) and, on the other, GMOs for which such a permit has not yet been issued (strict liability on the basis of the GenTG) is, however, less clear than it would seem at first blush. This is most obvious in the case of property law. The provisions which protect the property of land owners, and which, in Germany, are crucial to the liability of the user of GM crops vis-à-vis his neighbours, are based on three very flexible notions. An interference with land (*Einwirkung*) can, first, affect neighbouring property in varying degrees (ranging from 'non-existent' to 'marginal' or 'substantial'). Only if interference is of sufficient weight will a neighbour of a farmer who uses GM crops be able to claim equitable compensation in money.[10] He will, moreover, not be able to demand that the activity causing the interference (here the use of GM crops) be terminated and/or invoke tort law to claim damages if such use of land 'corresponds to local custom' and if the other party is unable to prevent the interference with the help of measures which are 'economically reasonable' in these cases. In practice, these rules thus require a considerable amount of interpretation.

5 Widespread public concern regarding the level of protection offered by the BGB for individuals affected by a legalised use of GMOs, particularly by farm-

[7] §§ 32(1), 3 no. 7, 16(2) and 14(1) sent. 2 GenTG.
[8] *R. Müller-Terpitz*, Genrapsbauer wider Willen, *Neue Zeitschrift für Verwaltungsrecht* 2001, 46 (48); *T. Linke*, Nochmals: Zufallsauskreuzungen und Gentechnikgesetz, *Natur und Recht* 2003, 154 (157).
[9] BGB.
[10] § 906(2) BGB.

ers, prompted legislative action in 2004.[11] The *Gentechnikgesetz* was thereby amended to include, in particular, § 36a GenTG, which now provides standards for the interpretation of the most important provision of property law in this context, § 906 BGB. This is a novel approach in the sense that the GenTG now also addresses problems caused by GMOs which are used after a permit to circulate them for general use by others has been granted.[12]

The *Gentechnikgesetz* is thus a special liability regime which specifically addresses liability for all GMOs but is limited in its scope of application to very specific cases. Farmers suffering damage from actual or feared GMO presence in non-GM crops can only invoke the GenTG to claim compensation if the contamination was caused by research and development (usually by open test sites[13]) or in the case of a very limited circulation of GMOs which excludes permission to further circulate their seed to others. The latter will be necessary in the early stages of a marketing process prior to the production of genetically modified agricultural goods. Apart from providing a number of legally binding standards for the interpretation of property law, the statute does not cover the most important case of damage resulting from the actual or feared GMO presence in GM-free crops, which is the risk of contamination by GM crops subsequently grown by farmers in the same area. 6

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

Establishment of the causal link between the alleged damage and the presence of a GMO is of prime importance in the area of strict liability, which cannot be limited by other factors such as fault or wrongfulness. The decisive test in applying the GenTG is thereby the traditional *condicio sine qua non* formula, which is not tempered by the exclusion of particularly unlikely events. In a similar vein, research and development risks[14] are not excluded from the ambit of § 32 GenTG.[15] 7

While claimants bringing a case on the basis of the GenTG will have to prove, usually with the help of expert opinion and testing, the existence of damage and causation through a GM crop (at their own cost), it will then be presumed that such damage was specifically caused by its modified characteristics.[16] This limited presumption of causation is refutable if it can be proven that the damage in question was caused by the unmodified genes of that particular 8

[11] *Gesetz zur Neuordnung des Gentechnikrechts* (GentechnikneuordG) of 21 December 2004, BGBl 2005 I 186 ff.
[12] So called *Nutzungsbeeinträchtigungen*.
[13] So called *Freilandversuche*.
[14] So called *Entwicklungsrisiken*.
[15] *W. Lülling/G. Landsberg* (supra fn. 6) no. 6, § 32 GenTG, nos 93 ff.
[16] So called *Ursachenvermutung*, § 34(1) GenTG.

GMO.[17] The GenTG thus provides only a limited degree of protection from the typical difficulties of proving causation in such cases. Some assistance, however, is given by § 35 GenTG. This provision requires the operator of a facility in which GMOs are developed, tested, produced or otherwise handled to provide information concerning the technical process, including tests on open land, so that victims can better ascertain whether claims based on the GenTG actually exist. In the case of tests on open land, detailed information will also be available from the authority which issued the required permit as such tests must be publicly registered.[18] This register must thereby reveal to the general public the specific type of crop, its modified characteristics, and the exact location and size of the field;[19] additional information will be disclosed to anyone with a legitimate interest (e.g., potential victims who can show that their property was subject to interference by GMOs).[20]

(b) How is the burden of proof distributed?

9 As indicated above, there is no reversed burden of proof beyond the scope of § 34 GenTG. Different sources of adventitious presence of GMOs are taken into account within the normal rules of evidence. *Prima facie* evidence will thereby often help the victim. If a particular GM crop is thus developed, tested, produced or otherwise handled in a certain area, and neighbouring fields are subsequently contaminated with GMOs of this kind, it will be extremely difficult – assuming the typical course of events – for the operator of the facility in question to avoid liability on the basis of § 32(1) GenTG. Specific proof of a different cause may be presented to counter the assumption[21] but will only be available in rare cases as claims based on the GenTG involve, by definition, only contamination by GMOs which have thus far seen little or no circulation. The specific genetic profile of these GMOs will hardly leave room for alternative causes.

(c) How are problems of multiple causes handled by the regime?

10 The GenTG – as far as it establishes strict liability – does not include special rules on alternative, potential or uncertain causation. The general rules of the BGB, however, apply. If it is thus not possible to identify as the true source one of several possible tortfeasors who could potentially have individually caused the contamination in question due to the cultivation of the same GM crop in the area, each of them will be jointly and separately responsible for the *whole* interference unless their respective contributions were in fact limited and particular shares can be apportioned according to § 287 of the Code of Civil Procedure.[22] The same principle is applied in cases where several tortfeasors can be safely identified as having caused the damage but it remains uncertain to

[17] § 34(2) GenTG.
[18] In accordance with Directive 2001/18/EC.
[19] § 16a(2) GenTG.
[20] § 16a(5) GenTG.
[21] BGH *Neue Juristische Wochenschrift* (NJW) 1978, 2032.
[22] § 830(1) sent. 2 BGB.

what extent one or the other is actually responsible.[23] Beyond these cases of alternative, potential or uncertain causation, joint and several liability is also expressly established by § 32(2) GenTG if the same damage is caused by more than one tortfeasor. The internal distribution of costs will depend on their respective shares of responsibility, § 32(2) sent. 2 GenTG, and recourse is possible on the basis of § 426(2) BGB if one of the responsible parties comes up for the full amount.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

The *Gentechnikgesetz* establishes, for the cases covered by § 32(1) GenTG outlined above, strict liability. 11

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

Contributory negligence is taken into account by virtue of § 32(3) GenTG, which expressly refers to the relevant provision of the German Civil Code.[24] This leads to a corresponding reduction in the amount of damages awarded and can, in severe cases, even exclude compensation altogether.[25] Factors which can contribute to the damage include failure to warn the tortfeasor of an unusually high amount of damage or failure to avert or at least limit damage. Courts thereby weigh contributing factors against the hazards resulting from the handling of GMOs. 12

Other defences are not available under the *Gentechnikgesetz*. Wrongful acts or omissions of third parties are expressly not accepted as intervening factors.[26] 13

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

See the answers given at nos 11–13 above. 14

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

Within the ambit of the strict liability regime as established by the GenTG, no distinction is made between crops and seed. The crucial point to note here, 15

[23] *W. Lülling/G. Landsberg* (supra fn. 6) no. 6, § 32 GenTG, nos 105 f.
[24] § 254 BGB.
[25] See, e.g., BGH *Versicherungsrecht* (VersR) 1963, 874; BGH VersR 1967, 1080; BGH VersR 1971, 1018.
[26] § 32(3) sent. 3 GenTG.

though, is that the production of GMOs is not covered by § 32(1) GenTG insofar as it concerns commercial activities going beyond research and development. Any production process which serves to circulate and make GMOs available for wider use is therefore subject to product liability legislation, property law and/or the general rules of tort law.[27]

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

16 The liability regime outlined above is not exclusive. Claims based on the general rules of the German Civil Code and/or any other legal basis may thus be brought simultaneously with claims based on § 32(1) GenTG.[28]

17 Two exceptions, however, apply. Victims of damage caused by medical preparations containing GMOs are directed to the Medical Preparations Act[29] if the medical product in question was subject to a licensing procedure or expressly exempted from such.[30] All other products containing GMOs require a special permit allowing their general circulation, which can either be granted on the basis of the *Gentechnikgesetz* itself[31] or other statutes which achieve a comparable level of safety.[32] Claims based on § 32(1) GenTG are excluded in both cases.[33]

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

18 § 32(1) GenTG provides compensation for, *inter alia*, property damage. Such damage is thereby defined by recourse to the general rules of the Civil Code,[34] which aim at full indemnification of a loss either in kind[35] or (if restitution *in natura* is either impossible, insufficient, or possible only at an unreasonable cost) in money.[36] The damage will thereby include the loss of future profits insofar as they would have probably been accrued under normal circumstances.[37] If indeed covered by *strict* liability, any contamination of GM-free crops will thereby often result in the complete loss of marketability because GMOs of the kind covered by § 32(1) GenTG are in most cases still in their experimental stage and excluded from human consumption or feed. Their value will therefore have to be fully compensated. The cost of any necessary decontamination

[27] *W. Lülling/G. Landsberg* (supra fn. 6) no. 6, § 32 GenTG, no. 56.
[28] § 37(3) GenTG.
[29] *Arzneimittelgesetz*.
[30] § 37(1) GenTG.
[31] § 16(2) GenTG.
[32] § 14(2) GenTG.
[33] § 37(2) GenTG.
[34] §§ 249 253 BGB. *W. Lülling/G. Landsberg* (supra fn. 6) no. 6, § 32 GenTG, no. 63 f.
[35] So called *Naturalrestitution*, § 249 sent. 1 BGB.
[36] § 251(1), (2) BGB.
[37] § 252 BGB.

of land will also be recoverable. If crops do remain marketable despite their contamination, the victim will have to reduce the damage by selling them, if possible, in accordance with any rules requiring specific labelling. Any depreciation following from the fact that crops cannot be marketed in the originally envisaged form will thereby be recoverable by taking into account the market price which could have been realised on the basis of private contractual agreements (e.g., with food producers). Costs caused by withdrawing products from the market will have to be compensated. Finally, liability under § 32(1) GenTG will cover indirect costs, such as increased overheads due to the need to find a new market for products, or, more importantly, to regain a certain producer status.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

Proof of actual admixture is necessary. § 32(1) GenTG specifically requires an infringement of property by GMOs, which does not arise if customers only fear that a farmer's products are contaminated. It is thereby important to note that the *Gentechnikgesetz* envisages that products, in particular foodstuffs and feed, may be produced through traditional techniques, ecological approaches, or genetic engineering. None of these mechanisms is in any way privileged, and will, in future agricultural practice, probably appear side by side in many regions. An attempt at zoning, and thus keeping apart different approaches on a larger scale, is not made. Farmers will therefore have to tolerate the existence of GMO cultivation in their vicinity despite the possible detrimental effects on their own market, which will inevitably feature more suspicious consumers. 19

(c) Where does the scheme draw the line between compensable and non compensable losses?

See the answer given at no. 19 above. 20

(d) What are the criteria for determining the amount of compensation?

See the answer given at no. 18 above. 21

(e) Is there a financial limit to liability?

§ 33 sent. 1 GenTG limits financial liability to € 85 million for all types of damage envisaged by § 32(1) GenTG. Several victims suffering damage from the same event will thereby only receive a quota if the total amount exceeds the cap.[38] 22

[38] § 33 sent. 2 GenTG.

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

23 The *Gentechnikgesetz* seeks to ensure compensation by placing potential tortfeasors under an obligation to create a mechanism which guarantees the payment of possible future damages (so-called *Deckungsvorsorge*) caused by particularly dangerous facilities[39] or the setting free of GMOs in the course of tests.[40] This obligation can be fulfilled either by third party insurance[41] or an indemnification guarantee or a warranty (so-called *Freistellungserklärung* or *Gewährleistungsverpflichtung*) declared by the state (either on the federal or provincial level).[42] § 36 GenTG is, at present, dormant and will have to be activated by ordinance. Farmers will, in any case, not be subject to these obligations, which do not cover the use of GMOs in wider circulation.

(g) Which procedures apply to obtain redress?

24 The *Gentechnikgesetz* does not specify any special procedures for obtaining redress on the basis of § 32(1) GenTG. The general rules apply.

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

25 Injunctive relief is available only on the basis of property law (§ 1004 BGB), which will be discussed in Part II below.

5. Compensation funds

26 An alternative compensation fund was proposed by the *Bundesrat*, Germany's second legislative chamber representing the states, in April 2004.[43] The idea was developed in the context of the discussions surrounding the level of protection offered to individuals affected by a future general use of GMOs, particularly by farmers, and was intended to cover compensation made necessary for the interference of neighbouring property on the basis of § 906 BGB. The *Bundesrat* thereby intended to counterbalance the strict standards for the interpretation of that provision introduced by § 36a GenTG. It was feared that the new regime, discussed in more detail below, would in practice establish prohibitively high standards of care for the cultivation of GM crops and, in turn, *de facto* (if not *de jure*) prevent or at least substantially limit the development of agriculture based on genetic engineering.

[39] § 7(1) nos 2 4 GenTG.
[40] § 36(1) GenTG.
[41] § 36(2) no. 1 GenTG.
[42] § 36(2) no. 2 GenTG.
[43] *Drucksachen des Deutschen Bundesrates* (BR Drs) 131/04 of 2. 4. 2004.

The incoming new government of Christian Democrats and Social Democrats declared in November 2005 that it would review the possibility of a compensation fund, though an insurance mechanism seems to be the preferred solution.[44] 27

(a) How are these funds financed (e.g. in the form of a levy on sown or harvested GM crops, or a levy on the sale of GM seeds, or a levy on fees to organic certification bodies)?

The proposal of the *Bundesrat* envisaged the fund to be financed both through contributions of the state and operator groups which draw economic advantages from GM-based agriculture (these were not identified in the draft but could include GM crop farmers, seed importers or developers, and the biotech industry). The precise method for determining contributions of the GM crop industry was not specified at that point; details were left for regulation by federal ordinance. At present, producers of seed are not willing to contribute to such a fund. They are instead focusing on the development of different mechanisms which aim to help GM crop farmers in dealing with liability risks. These mechanisms include indemnity clauses which channel liability from the farmer to the producer of seed, arrangements under which the seed producer himself takes direct and full legal responsibility for the raising of GM crops by the farmer (so-called *Vertragsanbau*), or the obligation to buy contaminated crops from the affected neighbours (so-called *Märka* model).[45] 28

(b) Is there any contribution granted by the national or regional authorities?

Contributions to the fund were to be allocated from the national budget. 29

(c) Is the contribution to the fund mandatory or voluntary?

The precise nature of contributions made by the industry is not entirely clear but it seems as if they would have been mandatory. 30

(d) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

This is not specified by the proposal; details were left for regulation by federal ordinance. 31

[44] See the Coalition Agreement (*Koalitionsvertrag*) of 11. 11. 2005, no. 8.9.
[45] See the *Eckpunkte* paper of the Federal Ministry of Health of June 2006.

(e) How are the funds operated? Which body is in charge of managing the fund and of deciding about justified claims? Which procedures apply to obtain compensation of loss?

32 Most of these aspects were not specified by the proposal; details were left for regulation by federal ordinance. It is, however, clear that a federal authority was envisaged to operate the fund.

(f) Are there any provisions for recourse against those responsible for the actual cause of the loss?

33 The fund was supposed to function as an *alternative* source of compensation. Farmers exposed to compensation claims on the basis of § 906(2) BGB due to the contamination of their neighbours' crops/farmland should have shown that they had adhered to all necessary safety standards (particularly those established by § 16b GenTG). In that case, the fund would have stepped in, effectively creating a system of exculpation for the observance of good professional practice (*gute fachliche Praxis*).

6. Comparison to other specific liability or compensation regimes

34 The *Gentechnikgesetz* establishes, in principle, a strict liability regime which is fairly similar to those created by other German statutes attempting to address the risks resulting from dangerous objects or activities. It is, however, rather limited in scope and has, thus far, resulted in next to no case law. The most striking feature of the statute is probably the absence of defences, which renders it, within its scope of application, very strict. As in other cases, contributory negligence will, however, be taken into account. In the context of this study, the most important aspect of the regime, however, is that the GenTG will not cover damage caused by GMOs which are put in circulation for general use, including GM crops. The only relevant – and controversial – provision which deals with this economically important issue is § 36a GenTG, which is crucial for the application of property law and which will be discussed in greater detail below.

II. General liability or other compensation schemes

1. Introduction

35 Farmers raising crops from GM seed which has been authorised/licensed for *general* circulation will be subject to the rules of the German Civil Code (*Bürgerliches Gesetzbuch*) and here, more specifically, to the provisions protecting the property interests of their neighbours (§§ 903 ff. BGB). Contaminated crops of neighbouring farmers are thus regarded as part of their immovable property (the farmland) until the point of harvest (§ 94 BGB). Such farmland is, in principle, also protected by the general provisions of tort law (§§ 823 ff. BGB), but only within the limits of special rules pertaining to immovable

property which oblige the owner or authorised user of a piece of land to accept a certain – albeit limited – level of outside interference. Whether GMOs constitute such an interference with land (nuisance) was in question for some time but has now been confirmed by the introduction of the new § 36a GenTG. Three scenarios have to be distinguished:

According to § 906(1) BGB, interference which does not adversely affect a neighbouring piece of land – or which affects it only marginally – must be tolerated by its owner or authorised user,[46] and is thus not regarded as illegal within the scope of §§ 823 ff. BGB.[47] Neither tort nor property law (nuisance) will offer compensation. 36

If land is used in a way which is *customary* in that particular region[48] and *does* impair a neighbouring piece of land significantly, such influence is again *not* illegal within the meaning of §§ 823 ff. BGB[49] and must be accepted by the neighbour under the condition that the negative effect cannot be prevented by the other party through measures which are economically reasonable (*wirtschaftlich zumutbar*) within the context of the particular activity (in this case agriculture). § 906(2) BGB will, however, allow the adversely affected neighbour to claim equitable compensation.[50] 37

Only if these conditions do *not* apply – i.e. if the land is *not* used in a way that is customary to that particular region or if the other party *could* prevent such significant impairment through economically reasonable measures, but fails to do so – can the neighbour demand termination of existing interferences[51] and/or apply for an injunction under the condition that further interference is imminent (§ 1004 BGB).[52] Compensation for damage caused to his crops/farmland can then be claimed on the basis of tort law or in an analogous application of § 906(2) BGB.[53] 38

These rules of property law are open-ended and thus require a considerable amount of interpretation. What level of contamination constitutes a substantial interference? Can the use of GM crops, as a very novel form of agriculture, be regarded as customary? And finally, what are the economically reasonable safety precautions which a farmer using GM crops must take to avoid them from contaminating neighbouring land? The new and very controversial § 36a GenTG now provides guidance for the application of § 906 BGB to cases of interference 39

[46] So called *Duldungspflicht*.
[47] *Entscheidungen des Bundesgerichtshofes in Zivilsachen* (BGHZ) 90, 255 ff.; 92, 148 ff.; *O. Jauernig*, in: *O. Jauernig* (ed.), Bürgerliches Gesetzbuch (11th ed. 2004) § 906 no. 8.
[48] So called *ortsübliche Nutzung*.
[49] BGHZ 117, 110 ff.; *O. Jauernig* (supra fn. 47) no. 47.
[50] So called *Ausgleichsanspruch*.
[51] So called *Beseitigungsanspruch*.
[52] So called *Unterlassungsanspruch*.
[53] *O. Jauernig* (supra fn. 47) no. 47, § 906 no. 9. These general rules also apply to non licensed GMOs (in addition to the special liability regime of the *Gentechnikgesetz*), see § 37(3) GenTG.

by GM crops by (1) establishing a standard for 'substantial' interference by GM crops; (2) defining what measures can reasonably be expected in order to avoid the disturbance of others; (3) clarifying the notion of a use of land according to regional custom; and, finally, (4) addressing the problem of multiple causes.

(a) 'Substantial' interference

40 Contamination of crops (farmland) with GMOs thus constitutes a 'substantial' interference within the meaning of § 906 BGB if, contrary to the intentions of the owner or authorised user of the neighbouring land, those crops may subsequently not be marketed at all,[54] may be marketed but only subject to labelling ('genetically modified') as prescribed by law,[55] or may not be marketed with a particular label ('organic') as previously intended by the owner and allowed on the basis of the chosen production method.[56] Any contamination with *non approved* GMOs will thus always constitute a substantial interference with a neighbour's crops/farmland since it renders these unmarketable. If crops/farmland are contaminated with *approved* GMOs (which leaves them affected but still potentially marketable), thresholds contained in specific legislation – but not, currently, in the GenTG, itself – will be directly applicable under § 906 BGB in order to determine the extent of the interference.[57] The most important threshold is thereby established by Art. 12(2) of Regulation (EC) 1829/2003, which requires that food containing or consisting of GMOs or produced from or containing ingredients produced from GMOs be labelled unless it 'contains, consists of or is produced from GMOs in a proportion no higher than 0.9 per cent of the food ingredients considered individually or food consisting of a single ingredient, provided that this presence is adventitious or technically unavoidable.' Art. 24(2) of Regulation (EC) 1829/2003 establishes the same threshold for feed. Interferences which leave crops/farmland below these thresholds will not constitute a 'substantial' interference while higher percentages of contamination will provide a basis for an equitable compensation under § 906(2) BGB. It is, however, unclear at this point whether the 0.9 per cent threshold could also be invoked if a GM-free farmer were to show that his contractual agreements with particular food producers included more severe standards.

41 The Federal Ministry of Health is currently reviewing the possibility of including directly in § 36a GenTG a more precise and authoritative definition of what constitutes a 'substantial' interference.[58]

[54] § 36a(1) no. 1 GenTG.
[55] § 36a(1) no. 2 GenTG.
[56] E.g., as 'ecological' within the meaning of EEC Council Directive 2092/91 of 24. 6. 1991 (see the explanatory memorandum of the amendment to the GenTG, BT Drs 15/3088, 31). See § 36a(1) no. 3 GenTG. See also the standards required by the *Verordnung zur Durchführung gemeinschaftsrechtlicher Vorschriften über neuartige Lebensmittel und Lebensmittelzutaten* (NLV) of 29. 2. 2000.
[57] BT Drs 15/3088, 31.
[58] *Eckpunkte* paper of June 2006.

(b) 'Economically reasonable' measures to prevent interference

The safety measures established by § 16b(2) and (3) GenTG (so-called *gute fachliche Praxis*) are declared 'economically reasonable' within the meaning of § 906(2) BGB and thus provide the standard of care for the user of GMOs.[59] The user of genetically modified plants is thus obliged to avoid as far as possible (the statute uses the term *vermeiden*) cross-fertilisation (both with other crops and the environment in general) by, e.g., the maintenance of a safety corridor between his crops and surrounding land, the selection of appropriate seed, the use of techniques to counteract the intrusion of alien plants onto his land, and the use of natural barriers. Both the use of GMOs (which includes fertilizer) and safety measures must be adequately documented.[60] In a similar vein, contamination of other products by GMOs must be prevented (here the statute uses the term *verhindern*) through the use of separate storage facilities and the adequate cleaning of such facilities or other equipment used in the production process.[61] Finally, the user of GMOs must also prevent the contamination of other products in transit by, again, using separate transport facilities (e.g., trucks) and the adequate cleaning of such facilities.[62] The person who markets GMOs (e.g., the seed producer)[63] must provide instructions on the handling of his product which aim to meet these safety standards and will give farmers some guidance on how to adhere to § 16b(2) and (3) GenTG. 42

(c) 'Customary use' of land in a particular region

'Customary use' of land in a particular region is *not* to be defined with respect to the predominant use of either GMOs or traditional production methods.[64] This provision seeks to safeguard the initial use of GMOs in an area. 43

(d) Multiple causes

If it is not possible to identify as the true source one of several neighbours of the affected land who could have individually caused the contamination in question, each neighbour will be deemed jointly and separately responsible for the *whole* interference[65] unless their respective contributions were limited and particular shares can be apportioned according to § 287 of the Code of Civil Procedure.[66] 44

§§ 36a and 16b GenTG thus provide legislative clarification that GMOs are, in principle, capable of interfering with neighbouring property interests and 45

[59] § 36a(2) GenTG.
[60] § 16b(3) no. 1 GenTG.
[61] § 16b(3) no. 3 GenTG.
[62] § 16b(3) no. 4 GenTG.
[63] § 16b(5) GenTG.
[64] § 36a(3) GenTG.
[65] §§ 830(1) sent. 2, 840(1) BGB.
[66] § 36a(4) GenTG.

are subject to the regime established by § 906 BGB. The criteria for the application of the latter provision to GMOs, as set out by the GenTG, are thereby fairly strict and have led to much debate about the viability of farming GMOs in Germany. The safety measures established by § 16b GenTG are costly and cannot be avoided; even if they are met, equitable compensation will have to be paid for higher levels of contamination.

46 §§ 36a and 16b GenTG will equally affect delictual claims based on § 823(1) BGB by defining the standard of care which farmers using GMOs will have to comply with. If the threshold of a 'substantial' interference with neighbouring property is crossed (constituting an infringement), farmers will thus have to show that they have met the requirements of § 16b GenTG if they wish to escape tortious liability. Evidence that they have followed the instructions given by their own supplier of genetically modified seed may thereby not be sufficient, but could at least provide the basis for a subsequent contractual action if these instructions turn out to provide insufficient safeguards.[67]

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

47 See the answers given at nos 7 and 8 above.

(b) How is the burden of proof distributed?

48 The normal rules of evidence apply. As far as a claim for equitable compensation on the basis of § 906(2) BGB is concerned, the owner or authorised user of the affected land will thus have to prove that a particular GM crop has indeed exerted substantial negative effects on his land (contamination) which exceed the limits of what he is obliged to accept by virtue of § 36a GenTG. The owner of the GM crop can in turn try to defend himself by showing that the interference was still within the limits of what the owner of the affected land must accept without compensation on the basis of § 906(1) BGB. If this fails, he will also have to prove that he has met his duties to safeguard the surrounding environment from the effects of his crop according to the standards of § 16b GenTG. A failure to do so will allow the owner of the affected property to demand the termination of any existing interference and, possibly, provide the grounds for an injunction if further interference is imminent (§ 1004 BGB). This can, e.g., become relevant if it is established that the GMO farmer failed to apply proper segregation measures. Compensation for damage caused to the crops/farmland can then be claimed on the basis of tort law. For a claim based on § 823(1) BGB to succeed, the neighbour will, however, have to prove the infringement of his property interests through the owner of the GM crops, as

[67] *T. Dolde*, Gesetz zur Neuordnung des Gentechnikrechts, *Zeitschrift für Rechtspolitik* 1/2005, 25 (27).

well as fault, damage, and causation. But even if the owner of the GM crop succeeds in showing that he has observed the safety measures prescribed by § 16b GenTG, he will have to pay equitable compensation for the detrimental effects caused to the neighbouring property. It is a claim for compensation which he cannot escape if the interference is indeed substantial.

As already explained above, *prima facie* evidence will often play an important role in cases of this kind. At least in the next few years (with GM crops not yet in wide use) and assuming (as the courts will do) the typical course of events, farmers relying on such methods will thus have great difficulty to avoid the payment of equitable compensation claimed on the basis of § 906(2) BGB if a particular GM crop is used in a certain area and neighbouring fields are in fact contaminated with plants or, in the event of cross-fertilisation, genes of this kind. They would have to provide concrete proof of a different cause to counter the assumption,[68] e.g., that the seed used by their neighbours was found to have been impure on previous occasions and that these impurities correspond to the type of GM crops they too cultivate. 49

A further point already emphasised above is the requirement for public registration of any GMO-related activity.[69] This includes the use of licensed GM crops by farmers.[70] The register will reveal the specific type of crop, its modified characteristics, and the exact location and size of the field.[71] The name and contact details of the person cultivating the crop will be disclosed to anyone with a legitimate interest, which will include neighbours of a particular field who can show that their property was subject to an interference by GMOs.[72] This information, which has to be submitted at least three months prior to sowing the crop, will give affected neighbours sufficient facts by which to determine the origin of a detected contamination. 50

Finally, it should be noted that there is currently considerable discussion concerning the principles of good professional practice (*gute fachliche Praxis*) mentioned above. § 16b GenTG merely outlines very basic principles, which can be specified in more detail by an ordinance.[73] This has, to date, not been done but the Federal Ministry of Health is at present drawing up plans for a more detailed set of guidelines. These could include, *inter alia*, a duty of farmers to inform their neighbours of any intention to raise GM crops; to make an attempt at harmonising his own choice of crops with those of neighbouring farmers in order to avoid, as far as this is possible, cross-fertilisation and; to avoid, again as far as possible, contamination of other crops/farmland by the use of safety measures throughout the production process, and to keep detailed records of these measures. Specific guidelines for particular types of crops, 51

[68] BGH NJW 1978, 2032.
[69] In accordance with Directive 2001/18/EC.
[70] § 16a(3) GenTG.
[71] § 16a(4) GenTG.
[72] § 16a(5) GenTG.
[73] § 16b(6) GenTG.

e.g., corn, are also under discussion. Finally, it is envisaged that neighbouring farmers could deviate from particular standards by signing individual agreements.[74] Such principles of good professional practice would, if implemented, impact both on the standard of care required in dealing with GM crops and the burden of proof as far as fault under § 823(1) BGB is concerned.

(c) How are problems of multiple causes handled by the general regime?

52 Problems caused by multiple causes are addressed by § 36a(4) GenTG for claims based on § 906 (2) BGB. If, as indicated above, it is not possible to identify as the true source one of several neighbours of the affected land who could have individually caused the contamination in question due to the cultivation of the same GM crop in the area (alternative causation), each neighbour will be deemed jointly and separately responsible for the *whole* interference unless their respective contributions were in fact limited and particular shares can be apportioned according to § 287 of the Code of Civil Procedure. The same is true for delictual claims.[75] Liability is thereby not channelled; in particular, farmers will not be able to avoid the payment of compensation despite the fact that they have adhered to the safety measures recommended by the producer of their GM seed.

53 § 426(1) BGB determines that, in the absence of a specific rule, those liable will have to come up with an equal share of the required compensation. Internal recourse is possible on the basis of § 426(2) BGB if one of the parties liable comes up with the full amount.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

54 The German regime for damage caused by licensed GM crops currently comes very close to strict liability. As explained above, it is thereby driven by § 906 BGB, a provision which seeks to strike a balance between the protection of immovable property and the outside influence which such property is inevitably exposed to. The amendments to the GenTG, which clarify the conditions under which the influence by GMOs will have to be tolerated, thereby make it difficult to escape the payment of equitable compensation. Fault does not, as such, play a role here simply because property law either requires the owner of land to accept an outside interference (if it is negligible) or grants equitable compensation (if such interference is substantial but nevertheless legal because it cannot be avoided by the other party through observance of economically reasonable measures). By cancelling out the requirement that the use of land be in accordance with regional custom (the dominance of traditional or ecological

[74] *Eckpunkte* paper of June 2006.
[75] §§ 830(1) sent. 2, 840(1) BGB.

farming methods in a particular region can thus not be invoked to prevent the use of GM crops), GM-based agriculture is thus, on the face of it, always possible but comes at a high price. This is where the standard of care established by § 16b GenTG comes into play. A farmer who uses GM crops will have to comply with the comprehensive safety measures designed to prevent contamination of neighbouring crops/farmland. This will ensure that he can pursue his farming methods even if they involve negative effects for his neighbours. These he will be obliged to compensate equitably, but as long as he can show compliance with the good professional practice (*gute fachliche Praxis*) as defined by § 16b GenTG, he is safe from delictual claims. The general rules of tort law will, however, become applicable if the standards established by the *Gentechnikgesetz* are not met. Any failure will constitute fault in terms of § 276(1) BGB.[76] The normal rules of evidence (including *prima facie* evidence) again apply.

It may be worthwhile emphasising at this point a distinction made by § 16b GenTG between, on the one hand, the *raising* of GM crops and, on the other, the *transportation* or *storage* of such crops. The first will require a farmer to avoid as far as possible the contamination of the environment, including neighbouring crops/farmland, by adhering to the safety procedures outlined above (e.g., adequate segregation measures). The second requires the farmer to actually prevent contamination, which could imply a harsher standard in practice. 55

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

As explained above in Part I, German law does have a specific strict liability regime in place for damage caused by GMOs. This regime is, however, limited in its scope of application and does not cover the main issue addressed in this study, which is the conflict between farmers who use GM crops and those who continue to rely on traditional or ecological methods of agriculture. The latter can, however, invoke §§ 32 ff. GenTG if they suffer damage caused by research and development facilities (for details see the answer at nos 12 and 13 above). 56

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

The German approach to the compensation of damage caused by GM crops is, as explained above, very much driven by property law (nuisance). The general rules of tort law can come into play but most conflicts are likely to center on the payment of equitable compensation on the basis of § 906(2) BGB. It is thus a predominantly no-fault regime. 57

[76] *T. Dolde* (supra fn. 67) 27.

4. Damage and remedies

(a) How is damage defined and measured?

58 The definition and calculation of damages under the general rules of tort law are equivalent to those under the *Gentechnikgesetz* (see the answer at no. 18 above).

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

59 See the answer at no. 19 above.

(c) Where does your legal system draw the line between compensable and non compensable losses?

60 See the answer at no. 19 above.

(d) What are the criteria for determining the amount of compensation in general?

61 See the answer at no. 18 above.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

62 There is no financial limit to liability under the general rules.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

63 At present there is no general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability. § 36 GenTG, which would offer a basis for the introduction of such an obligation for facilities in which dangerous GMOs are handled but which is currently dormant, does not apply to farmers of GM crops. Insurers have, moreover, indicated on several occasions that the current regime – based, in essence, on a no-fault system – would not be insurable since contamination of neighbouring crops is regarded as inevitable in practice.[77]

[77] See the comments in the *Eckpunkte* paper of the Federal Ministry of Health of June 2006; Ge samtverband der Deutschen Versicherungswirtschaft e.V., *Sind Risiken der Gentechnik durch Versicherung abzudecken?* (25. 8. 2004).

(g) Which procedures apply to obtain redress in such cases?

The general rules apply, as special procedures for obtaining redress in these cases do not exist. 64

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

General compensation schemes which might be applicable in these cases do not exist. A special fund was proposed in 2004 but has not yet been introduced (see the answers at nos 26–33 above). 65

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

There are at present no specific rules which cover the considerable costs associated with sampling and testing for GMO presence in other products. Food producers are legally obliged to monitor their products at their own cost, to ensure that these remain below the permitted thresholds for GM-free crops. 66

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

Farmers will currently have to test their crops themselves and at their own cost. These are estimated at € 40 to € 200 per sample, depending on the type of analysis. 67

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

Costs for sampling and testing are only recoverable if the tests prove actual GMO presence. In practice, these costs will form a part of the compensation claim. 68

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

At present, special rules concerning cross-border cases do not exist. 69

2. General rules of jurisdiction and choice of law

The general regime concerning cross-border cases in which GM crops raised by a farmer in Germany contaminate GM-free crops in another country would 70

allow the victim to choose between the more favourable legal regime if the claim is based on tort law.[78] The amount of compensation which can be enforced against a German national or company registered in Germany is, in any case, restricted to the amount which would be awarded under German law.[79] Claims based on property law (nuisance) would have to be based on the law applicable in the foreign jurisdiction (*lex rei sitae*).[80]

[78] BGH NJW 1964, 2012; BGH NJW 1981, 1606; *A. Heldrich*, in: Palandt, Bürgerliches Gesetz buch (65th ed. 2006), *Einführungsgesetz in das Bürgerliches Gesetzbuch* (EGBGB) 38 (IPR), no. 21.

[79] § 38 EGBGB.

[80] *A. Heldrich* (supra fn. 78) no. 21.

Economic Loss Caused by GMOs in Greece

Eugenia Dacoronia

I. General introduction

Before answering the questions set out in the final questionnaire, we find it useful to make a small presentation of the legal frame regarding the protection of the environment in Greece. In 1986 the Parliament enacted the law-frame 1650/1986 "for the protection of the environment". According to the said law, any act or omission leading to the "pollution" or "contamination" or "degradation" of the environment and resulting in adverse secondary effects inasmuch to environmental "goods" as to human beings constitutes an offence to the environment. 1

According to the definitions of art. 2, paragraphs 2–4 of l. 1650 of 1986, "pollution" is the presence of pollutants in the environment, meaning any sort of substances, noise, radiation or other forms of energy in such quantity, concentration or duration, that makes them capable of causing negative effects on health, living organisms and ecosystems or capable of material damage and generally capable of rendering the environment unsuitable for its desired uses. "Contamination" is a form of pollution characterised by the presence of pathogenic micro-organisms in the environment or of indicators suggesting the probable presence of such micro-organisms. Finally, "degradation" is the pollution or any other changes to the environment caused by human activity and capable of probable negative effects on ecological equilibrium, quality of life and health of inhabitants, historic and cultural heritage, and aesthetic values. 2

Apart from the penal and administrative sanctions provided in the above law, art. 29 deals with civil liability and provides that: "Whoever, physical person or legal entity, provokes pollution or other degradation to the environment, is liable for damages, unless he proves that the damage is due to an act of God or it was the result of a third party's culpable act. The third party must have acted on purpose." As derived from art. 29, in order to establish liability, it suffices that there is an unlawful act or omission causing pollution or environmental degradation, damage and causation between the said act or omission and the damage. The defendant may assert the defences of act of God or the malicious act of a stranger, in order to be discharged of liability. 3

4 The objective of art. 29 is to protect persons and goods exposed to the risks which installations and activities, possibly prejudicial to the environment, entail. Therefore, art. 29 of l. 1650/1986 provides for a type of risk liability[1], but it has been severely criticized by scholars mainly on two grounds:

a) on the ground that it is too general, not differentiating minor polluting activities from severe ones in their consequences. The establishment of strict liability, without taking into consideration how dangerous the specific source is (which, as a rule, stands in conjunction with the economic size of the activity), renders the provision particularly insufficient against "small and medium-sized" offenders of the environment and, on the other hand, lenient against the source operators of increased potential danger to the environment.
b) on the ground that in the cases of sources of increased pollution, the introduction of the exemption from liability e.g. an act of God etc. might prove non-equitable for the society that would sustain the damage[2].

5 For the abovementioned reasons the adoption of a strict liability clause is proposed, which will exclusively cover only the source of increased risk to the environment[3]. Also due to the above criticism scholars and jurisprudence tend to find the solution elsewhere when it comes to civil liability of sources of regular pollution or degradation to the environment, and in particular in the provisions of the Greek Civil Code of 1946 (hereinafter called GCC).

6 Reflecting a period when pollution of the environment was not a vital problem, the GCC did not include provisions specially devoted to the protection of the environment. Nevertheless, its provisions regarding:

- neighbour-law (arts. 1003 etc. of the GCC),
- the protection of common things, such as the air and the sea, and of things of common use, such as big lakes, rivers etc., and
- the protection of the personality (arts. 57–59 of the GCC)[4],

all of them read in the light of the Greek Constitution of 1975, as revised in 2001, which in its art. 24 introduces an express right to the environment, prove to be an adequate ground for the solution of legal problems arising from the pollution of the environment, as will be illustrated hereunder, when answering the questions.

7 The Greek Civil Courts, when deciding on cases involving environmental issues, have succeeded in giving satisfactory solutions by applying the above

[1] *I. Karakostas*, Environmental Law (in Greek, 2nd ed. 2006) 518 519.
[2] See *I. Karakostas* (supra fn. 1) 515 518.
[3] *I. Karakostas* (supra fn. 1) 589 592.
[4] The claims provided for in case of an offence against the vital space and resulting from the infringement of the personality right (art. 57 GCC) are the following: a) claim for an injunction ordering the cessation of the activity, b) claim for an injunction to restrain future infringements, c) claim for damages, provided the specific requirements of the law of torts (art. 914 GCC) are fulfilled, and d) claim for damages for emotional stress and strain (art. 59 GCC).

mentioned articles of the GCC and in particular the articles for the protection of the personality (arts. 57 ff. of the GCC)[5]. Environmental disputes are usually the object of petitions for interlocutory injunctions for provisional and protective measures on the basis of the provisions for the protection of the personality. Individuals or legal entities resorting to civil courts usually aim at the prevention or the cessation of the environmental damage and less at the restitution of damage caused, as the latter in most cases are unable to be evaluated or even to be comprehended.

8 However, a violation of the right of use of a thing common to all or of a thing in public use, i.e. of an element of the living space, may establish tortious liability for the reparation of environmental damage according to art. 914 GCC, which stipulates that whoever wrongfully (i.e. intentionally or negligently) and unlawfully inflicts an injury on another, is bound to make reparation to the other for any damage thus caused. This reparation includes the reduction of the value of the existing estate of the injured party (positive damage, *dam num emergens*), as well as the loss of profit (*lucrum cessans*). That which can be expected as probable profit in the usual course of events or by reference to the special circumstances and particularly to the preparatory measures taken, shall be reckoned as loss of profit (art. 298 GCC)[6]. Regardless of the compensation for damage to property, the court may award reasonable, according to its judgment, pecuniary compensation, due to emotional stress and strain for damage to goods such as life, health, physical integrity, freedom, honour, etc.

9 Compensation, in principle, is paid in money (art. 297, subpar. 1 GCC). Provision, however, is made, by way of exception, for the possibility of its payment *in natura*. Thus, subpar. 2 of art. 297 GCC lays down that the court may, taking into consideration any special circumstances, order, in lieu of compensation in money, the restoration to the former state of affairs (*status quo ante*), if this is

[5] *Areios Pagos* (Greek Supreme Court, AP) (in full bench) 7/1992 NoV (*Nomiko Vima)* 41 (1993) 63; AP1588/1999 PerDik (*Perivallon kai Dikaio*) 1/2000, 62 followed by a note of *A. Kalavros*; 286/1987, Ell Dni (*Elliniki Dikaiosini*) 29, 1365; Court of First Instance of Thessaloniki 10623/2003**,** Arm (*Armenopoulos*) NH΄, 423; Court of First Instance of Kalamata 109/2003 PerDik 2/2004, 217; Court of First Instance of Volos 2785/2003, PerDik 3/2003, 443; Court of First Instance of Mesologgi 77/2000, PerDik 4/2001, 575, followed by a note of *E. Dacoronia*. Court of First Instance of Ioannina 471/1996, PerDik 1/1997, 84, followed by a note of *E. Dacoronia*; Court of First Instance of Serres 12/1994, NoV 42 (1994) 1032; Court of First Instance of Chalkida 336/1992, Ell Dni 33, 1513; Court of First Instance of Korinthos 301/1992 (not published); Court of First Instance of Nafplio 163/1991, NoV 39 (1991) 786; Court of First Instance of Volos 1097/229/1989, NoV 38 (1990) 308; Court of First Instance of Naxos 58/1989 (not published); Court of First Instance of Thiva 80/1985, NoV 33 (1985) 1057; Athens Court of First Instance 702/1981, NoV 29 (1981) 1301; Court of First Instance of Edessa 93/1981, Ell Dni 22, 366; Court of First Instance of Kalamata 5/1974, Dni 1975, 125; Justice of the Peace of Tinos 19/1992, Arch N (*Archeio Nomologias*) 43, 640 and 30/1991 (not published); Justice of the Peace of Chalkida 25/1986, 127/1986 and 238/1986, Ell Dni 28, 931, 1130 and 1472 respec tively; Justice of the Peace of Ypati 14/1980, Ell Dni 21, 781.

[6] For the notion of positive damage and loss of profit in Greek law see (in English) *M. Stathopoulos*, Contract Law in Hellas (1995) no. 305.

not contrary to the interests of the creditor. In the case of ecological damage, the provision of art. 297 GCC provides the legal basis so that the restitution *in natura* of the impaired element of the environment, to the extent that this is possible, is achieved.

10 The enforcement of the provisions ensuing from art. 914 concerning environmental damage often collides with the inability of the damaged party to prove the wrongfulness of the damaging party on the one hand, and the causal relationship between the unlawful and culpable behaviour and the environmental damage on the other hand. Nevertheless, an effort is being made to deal with the difficulty of the damaged party to prove the culpability of the damaging party and the contribution of the causative link *through the development of care and safety obligations of those operators representing a source of danger for the environment, in conjunction with the reversal of the burden of proof of the causative link on the basis of the theory of spheres of influence.*

11 Furthermore, l. 2251/1994 on the protection of the consumer[7], which incorporated Directive 85/374/EC, is also applicable to cases concerning environmental damage[8], as is now explicity provided in art. 6 § 6 of the said law, after its amendment by art. 7 § 2 of l. 3587/2007. According to art. 6 § 1 of l. 2251/1994, the producer is liable for any damage caused by a defect in his product. The injured party is required to prove the damage, the defect and the causal relationship between the defect and the damage. Fault is not a precondition of the liability established by art. 6 of l. 2251/1994.

12 The goods which fall under the protective scope of the law may be either material or elements of the personality, which means that liability based on the said law can be well established in the case of environmental damage[9].

13 In comparison with l. 1650/1986 and art. 914 GCC, the legal basis of l. 2251/1994 presents the following advantages[10]:

a) Art. 6 §§ 2 sent. a, 3, 4, gives a broad definition of the producer, which includes all persons involved in the production and distribution process, i.e. the producers of the finished product, the producers of a component part or raw material, the importers, the suppliers, the persons who present themselves as producers by affixing their name, trade mark or other distinguishing feature or who supply a product the producer of which cannot be identified. Due to the broad conception of the producer, the person liable can be in almost every case determined. Therefore, while in regard to environmental cases it is not easy as a rule to impute the damage to someone, the application of l. 2251/1994 facilitates significantly the determination of the person liable for reparations.

[7] For an analysis of the said law see *I. Karakostas*, The producer's liability for defective products (1995); *I. Karakostas/D. Tzouganatos,* Consumer protection (l. 2251/1994) (1997).

[8] Even before its amendment, l. 2251/1994 was interpreted in such a way as to also embrace environmental damage (see *I. Karakostas* (supra fn. 1) 544 ff.).

[9] See *I. Karakostas* (supra fn. 1) 549.

[10] *I. Karakostas* (supra fn. 1) 550.

b) Art. 6 § 1 introduces strict liability, regardless of fault and illegality. The plaintiff must merely invoke and prove the defectiveness of the product, which resulted in the provocation of the damage. However, the *state of the art* defence is explicitly given to the producer of a defective product, in order to be freed from any liability (art. 6 § 8 of the l. 2251/1994).
c) Art. 8 provides for the reversal of the burden of proof for the provider of services, which also extends to cases of damage to environmental elements[11].

Finally, it has to be mentioned that apart from the law-frame for the protection of the environment (l. 1650/1986), civil liability covering particular risks is also provided by important special laws, such as: 14

a) L. 314/1976 and l. 1638/1986, ratifying respectively the 1969 Brussels International Convention on Civil Liability for Oil Pollution Damage and its supplementary International Brussels Convention of 1971 on the Establishment of an International Fund for Compensation for Oil Pollution Damage.
b) Law decree 336/1969, which ratifies the 1960 Paris Convention on Civil Liability in the Nuclear Energy Sector and the attached protocol, as in force today after the l. 1758/1988 on Civil Liability in the Nuclear Energy Sector.
c) L. 743/1977 on the protection of marine environment, l. 1147/1981 ratifying the 1972 London International Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Materials and l. 855/1978 ratifying the 1976 Barcelona International Convention for the Protection of the Mediterranean Sea against Pollution.

II. Special liability or compensation regimes

1. Introduction

In Greece there is no special liability regime which exclusively or specifically addresses the liability of GMOs. The Cartagena Protocol of 2000 on Biosafety to the Convention on Biological Diversity, which has been ratified with the l. 3233/2004, though it is the first international text of obligatory character which recognises the precautionary principle, does not include any provision regarding civil liability in cases where, due to the release of GMOs, injury to human health (death or severe offenses), severe impairment of the environment or serious economic damage of the producers of conventional cultivations has taken place[12]. 15

[11] *I. Karakostas* (supra fn. 1) 554, 555.
[12] About the Cartagena Protocol see *G. Balias*, The Cartagena Protocol on the Prevention of Bio technological Risks. A Change of Example in the International Law of Environment, *Nomos kai Physsi* (Law and Nature) 2000, 27 ff.; *id.*, The Precautionary Principle in International, EU and National Law (2005) 188 ff. For the application of the precautionary principle in Greek Public Law in general see *Sp. Flogaitis*/*Chr. Pétrou*, Les avancés du principe de précaution en droit public grec, RHDI (*Revue Hellénique de Droit International*) 59 (2006) 449 470.

16 It has been mentioned[13] that trying to fill this lacuna with the provisions of the traditional law regulating civil liability poses problems. This is due on the one hand to the uncertainty and the unpredictability of the risks that are inherent in GMOs, and on the other to the fact that the special provisions on liability for defective products can only apply to those GMOs that address food or feed and not to those that are going to be released into the environment. The reason for the non-application of these provisions in this latter case is that when GMOs are going to be released into the environment what is dealt with is the process, the whole way of their production and not the products themselves[14]. It has been proposed also in Greece[15] that the provisions of the International Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment, which was signed in Lugano on 22 June 1993 during the Meeting of the Ministers of Justice are the most appropriate to deal with the civil liability related to the GMOs of this particular category. This is due to the fact that with this Convention genuine objective liability is introduced for the activity operator responsible for the activity which is dangerous to the environment.

17 The Lugano Convention has not been ratified by many countries and there are no plans for its ratification in the immediate future, which means that its provisions are not immediately applicable. Nevertheless, it can be the basis for the regulation of the liability relating to GMOs, not without some modifications, however, regarding the possibility of discharge from liability[16]. According to the Convention the activity operator is discharged from liability if he can prove that the damage:

a) is due to *force majeure*;
b) was caused by an act of a third party with the intent to cause damage, despite safety measures necessary and appropriate to the type of the dangerous activity in question having been taken;
c) was caused though there was compliance with the orders and measures imposed by the public authority;
d) was caused by pollution at tolerable levels under usual local circumstances; or
e) was caused by a dangerous activity attempted in the interests of the person who suffered the damage, provided that it was reasonable towards this person to expose him to the risks of the dangerous activity.

18 The modifications needed, due to the particularity of the GMOs, will have eventually to do with the non-acceptance of the discharge of liability:

[13] *G. Balias*, *Nomos kai Physsi* 2000, 47.
[14] *M.-A. Hermitte/Ch. Noiville,* La dissémination volontaire d'organismes génétiquement modifiés dans l'environnement. Une première application du principe de prudence, *Révue Juridique de l'Environnement* 3 1993, 392; *G. Balias*, *Nomos kai Physsi* 2000, 48. *Ev. Raftopoulos*, The polluter pays principle and agriculture in Greece (in English), RHDI 59 (2006) 284.
[15] *G. Balias*, supra (fn. 13).
[16] *G. Balias*, *Nomos kai Physsi* 2000, 48, 49, who has adopted the arguments of *G. Martin*, La nécessité d'un "bricolage juridique" en matière de responsabilité, in: *V. Le Roy* (ed.), Les dossiers de l'environnement de l' INRA, Paris 1996, 33, 34.

a) when the scientific and technical knowledge at the time when the offence took place was not adequate to show the dangerousness of a substance or an organism ("development risks"). The precautionary principle, which must dominate the solutions to be adopted, dictates that civil liability for GMOs should not be excluded when at the time of the offence there was scientific uncertainty of the dangerousness of a substance or an organism. If, in the public scientific discussion, the existence of the dangerousness of the GMOs has been expressed even as a minority view, the operator of an activity related to the said GMOs should be held liable for the offences caused to the environment or to the health of human beings from the release of the GMOs.
b) on the basis of the argument of "the interest of the person who sustained the damage from its exposure to the risk". Civil liability for GMOs cannot be excluded either, when the interest of the person who sustained the damage led him to the exposure to the risk. Exemption from liability in such a case would be inequitable for the victims, as the uncertainty of the nature of GMOs is too high and, as a consequence, it is almost impossible for the victim to evaluate their dangerousness; the interest of the person as a reason for the exemption from liability can only then be accepted when there is obligatory information about the risks to which the person is exposed, which is not the case with GMOs.

19 Concluding the above, a system of absolute liability, i.e. strict without the possibility of defences for the eventual damage caused to conventional or biological (organic) cultivations by GMO cultivations is being proposed in Greece by four University Professors of different disciplines (Medicine, Biochemistry and Biotechnology, Agriculture and Law) and by a lawyer specialising in Environmental Law, author of various books and articles.[17] The Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage may help in this direction.

20 The Greek jurisprudence has not yet dealt with issues relating to GMOs, but we are of the opinion that if a case concerning GMOs was to be brought before the Greek Courts, the latter would make their decision after taking into consideration the precautionary principle, as a large majority of them have done in several cases dealing with the risk of exposure to electromagnetic radiation emitted by mobile telephone base stations[18]. For example in the injunction order

[17] See *T. Kourakis/D. Kouretas/L. Louloudis/A. Manitakis/G. Balias* in an article published in the daily newspaper "Kathimerini "on the 30. 1. 2005.

[18] One member Court of First Instance of Thessaloniki 13776/2002, PerDik 2002, 360 (followed by a note of *M. Kotzaivazoglou*); 16242/2003 Arm 2005, 1202; 9069/2005 published at the data basis NOMOS; 10165/2005 (not published); 10252/2005 (not published); 17599/2005 (not published); multimember Court of First Instance of Thessaloniki 26223/2005, PerDik 4/2005, 614 (followed by a note of *Ap. Sinis*); one member Court of First Instance of Larissa 3867/2005, Dikografia (Brief) 2005, 557. The decisions of the one member Court of First Instance of Patras 1558/1998 PerDik 2/2001, 247; 3421/2000, PerDik 1/2001, 88, of the one member Court

4531/2004 of the First Instance Court of Athens[19], the plaintiffs living in the area of "Stathmos Larisis", which is one of the most densely populated areas of Athens, in their petition, asked for an injunction order for an immediate removal of the mobile telephone base stations. They stated that they were suffering feelings of fear, worry and mental distress for the consequences the daily exposure to electromagnetic radiation, emitted by the mobile telephone base stations in question would have on their mental health and their environment, since, apart from their homes, antennas were also located in the vicinity of the base stations, at schools and colleges of their children.

21 The defendants alleged that the petition should be rejected as unsubstantiated, due to its vagueness, since there is no scientific certainty that there is a specific case of health damage by mobile telephone antenna emissions. They also alleged that there has been no medical or other expert opinion called upon, which correlated illness with the operation of the mobile telephone base stations.

22 The Court, however, accepted that according to the precautionary principle, based upon the possible oncoming of harmful consequences for health and accordingly for the environment, only indications are sufficient; complete proof of the causative link between the mobile telephone antenna operations and a specific disease by its operation was not necessary. The Court held that, according to Community case law, the existence of substantial scientific evidence in terms of the actual possible adverse health effects, in the case of oncoming danger was not necessary. Consequently, it decided that the petition was of actual substance and ordered the removal of the mobile telephone base station antennas from the specific spaces.

23 There are courts, however, that considered that only indications are not sufficient and have rejected the relevant injunctions[20]. Arguments and counter-arguments have been exposed abundantly in all cases relating to electromagnetic radiation emanating from mobile phone base stations and we believe they will be the same in the not so remote future, when cases relating to GMOs reach the Courts.

24 For the time being in Greece the relevant matters are dealt with under l. 1650/1986 on the protection of the environment, given that both art. 17 of the

of First Instance of Herakleion 802/2003, NoV 2003, 1458 and the decision of the Court of Appeal of Patras 182/2001, PerDik 2/2001, 249 (followed by a note of *T. Nikolopoulos*) were the first decisions, not explicitly mentioning the precautionary principle, but actually implying it, as they founded their judgment on the probability of risks to human health from electromagnetic radiation.

[19] Arm 2005, 467.

[20] Court of Appeal of Patras 169/2002, NoV 51, 66 followed by a note of *T. Nikolopoulos*; one member Court of First Instance of Athens 14316/1995, PerDik 2/1997, 230; one member Court of First Instance of Patras 2260/1998, PerDik 2/2001, 248; one member Court of First Instance of Trikala 420/1998, PerDik 1999, 577.

Joint Ministerial Decision Η.Π.:11642/1943/2002[21] (issued in implementation of Council Directive 98/81/EC, which modified Council Directive 90/219/EC on terms and conditions for the contained use of genetically modified micro-organisms, and of Council Directive 2001/204/EC) as well as art. 33 of the Joint Ministerial Decision 38639/2017/2005[22] (which implemented Directive 2001/18/EC on the deliberate release into the environment of genetically modified micro-organisms)[23] include a provision stating that the civil sanctions provided by art. 29 of the l. 1650/1986 are imposed on any person who, by acting or omitting to act, violates the provisions of the said Ministerial Decisions[24]. Therefore, the questions of the first part of the questionnaire will be answered according to the provisions of l. 1650/1986.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

Generally speaking, the establishment of risk liability in Greece requires that a causal link exists between the source of risk and the damage, which is examined under the theory of adequate causation. According to the said theory, there is a causal relation between an act and an effect when the former is an "adequate cause" of the latter, i.e. when the act had the tendency, the capability of leading to the damage in accordance with the normal course of events and common experience. Damage which has been caused by an unforeseen, chance or extraordinary circumstance or which is due to the peculiarity of the specific case and not to the general trend of the condition is not regarded as being linked in an adequate way with it[25]. 25

The protective aim of the rule of law is also crucial for establishing liability[26]. The said theory examines what interests and to what extent the rule of law seeks to protect in order to determine the extent of the protection. This 26

[21] Government Gazette (FEK) Issue Β΄ 831/2002.

[22] FEK Issue Β΄1334/2005.

[23] For the implementation and application of the GMOs Community rules in the Greek legal order see *Ath. Takis*, The legal status of GMOs in the European Union and elements of the adaptation of the Greek law, Arm 60 (2006) 1552 1556.

[24] Also art. 12 of the Joint Ministerial Decision 95267/1893/1995, which implemented Council Directive 90/219/EC as amended by Council Directive 94/51/EC (FEK Issue Β΄ 1030/1995), subsequently replaced and abolished by art. 21 of the Joint Ministerial Decision Η.Π.: 11642/1943/2002, contained a similar provision. The Joint Ministerial Decision 278787/2005 on Necessary Complementary Measures for the Implementation of Regulations 1829/2003/EC and 1830/2003/EC of the European Parliament and the European Council (FEK Issue Β΄ 998/2005), however, includes only penal and administrative sanctions.

[25] *M. Stathopoulos* (supra fn. 6) no. 311.

[26] *I. Karakostas* (supra fn. 1) 522 523; *P. Filios*, Law of Obligations, General Part (2nd ed. 1996) § 93.

examination will reveal whether the interests which have been prejudiced directly or indirectly fall within those which it was the law's purpose to protect and whether, consequently, its infringement gives rise to liability for damage caused by this injury. It is all a matter of how far the range of the rule of law which has been infringed extends[27].

27 It has been suggested[28] that in cases of risk liability, such being environmental liability also, a further restriction is required according to the specific aim of the rule of law on which the liability is grounded. The reason which justifies the establishment of risk liability is the possession of a source of risk, from which benefits can be drawn for the possessor. Consequently, liability should be imposed only if those risks which drove the legislator to establish increased liability are effectuated, i.e. only the typical risks which are linked with the specific source. Accordingly, the damage must be the result of the effectuation of the typical risks which are connected with the possession and operation of a source of risk.

28 No particular criteria however with respect to GMOs have been established in Greece yet.

29 There are no rules allocating the costs of testing or of other means to establish causation.

(b) How is the burden of proof distributed?

30 According to the general rules of the Greek Code of Civil Procedure (GCCP) the burden of proof lies with the plaintiff: the plaintiff is burdened with proving the elements of the rule of law he invokes. Causation is one of the preconditions required for the application of art. 29 of l. 1650/1986, which normally should be proved by the plaintiff. Therefore, if the GCCP was to be applied, the plaintiff should have to prove that the damage he sustained is the consequence of the presence of GMOs. As such a proof is difficult in cases of environmental damage, a reversal of the burden of proof is possible by adopting the position of the doctrine according to which cases of ecological harm must be treated in the same way as cases of product liability as regards the burden of proof.[29]

31 The different sources of adventitious presence of GMOs are not being taken into account.

[27] *M. Stathopoulos* (supra fn. 6) no. 312.
[28] *I. Karakostas* (supra fn. 1) 523; *P. Filios* (supra fn. 26).
[29] For an analysis of this position see hereinafter the answer to the correspondent question under the general liability scheme, where also the distribution of the burden of proof in cases of GMOs is dealt with.

(c) How are problems of multiple causes handled by the regime?

L. 1650/1986 has no special provision on multiple causes. The general rules of the GCC apply and in particular arts. 926 and 927 thereof, for which see in detail hereinafter the answer to the corresponding question under the general liability scheme. 32

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

The liability regime of l. 1650/1986 is strict. The only defences available to the actor are, as provided by art. 29, acts of God and third parties' malicious acts. The burden of proof lies on the polluter. If he cannot prove that the damage is either due to an act of God or the result of a third party's culpable act, he will be liable to pay damages, even if fault cannot be established. 33

Furthermore, it must be noted that it is accepted that art. 300 GCC on the concurrent fault of the person who sustained the damage is also applicable to cases which fall under l. 1650/1986. Accordingly, when the plaintiff has contributed to the damage or to its extent, it is possible that the liability of the defendant is diminished or even excluded[30]. 34

It is also worth mentioning that liability may not be excluded even if the defendant has acted in conformity with the above mentioned Ministerial Decisions Η.Π.:11642/1943/2002 and 38639/2017/2005, which provide for the terms and conditions for the use and release of genetically modified micro-organisms. This is owing to the legal nature of the polluter's liability as risk liability, for which illegality is not a precondition[31]. 35

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

The Greek legislator has not established any particular criteria for any kind of production. 36

[30] *I. Karakostas* (supra fn. 1) 523 525.
[31] *I. Karakostas* (supra fn. 1) 524.

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

37 The liability regime based on l. 1650/1986 is not exclusive. Damage caused by the presence of GMOs may give rise to liability not only according to l. 1650/1986, but also according to the general tort law (art. 914 GCC), neighbour law (arts. 1003 ff. GCC) and l. 2251/1994 on the protection of the consumer[32].

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

38 Damage, according to art. 29 of l. 1650/1986, is not understood merely as the pollution or degradation of the environment as such; it is further required that damage is provoked against a legally protected good or interest of the plaintiff due to the environmental pollution or degradation[33] (e.g. devaluation of products).

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

39 An answer to this question is given hereinafter under the general liability scheme.

(c) Where does the scheme draw the line between compensable and non compensable losses?

40 Same as above under (b).

(d) What are the criteria for determining the amount of compensation?

41 Art. 297 ff. GCC apply for the calculation of damages. Therefore, damage includes both the positive damage, i.e. the reduction of the existing estate of the injured party, and the negative damage (or lost profits) as well, i.e. the prevention to increase his assets. Lost profit, however, is only restituted if it could be expected as probable profit in the usual course of events or by reference to the special circumstances and particularly to the preparatory measures taken (art. 298 sent. 2 GCC). Given that it is highly likely that the GMO admixture may initially remain undetected and the consequences of the use of GMOs may come about in the future, it is accepted that future and indirect damage is also compensated for according to art. 29 of l. 1650/1986[34].

[32] *I. Karakostas* (supra fn. 1) 529 530.
[33] *I. Karakostas* (supra fn. 1) 521.
[34] See *I. Karakostas* (supra fn. 1) 522.

Economic damage also includes money spent on diminishing damage by the person who sustained it[35]. 42

(e) Is there a financial limit to liability?

Art. 29 does not pose a financial limit to liability; accordingly, all damage is covered by the compensation. 43

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

There are no special regulations for GMOs. Answers to these questions are given hereinafter under the general liability scheme. 44

(g) Which procedures apply to obtain redress?

Same as above under (f). 45

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

Same as above under (f). 46

5. Compensation funds

No compensation funds have been set up or planned yet. 47

6. Comparison to other specific liability or compensation regimes

As already mentioned, there is no specific liability or compensation regime for GMOs in Greece. According to the existing legal frame, the relevant matters are dealt with under art. 29 of l. 1650/1986 on environmental liability. 48

III. General liability or other compensation schemes

1. Introduction

As already mentioned, bases that may be used to raise actionable claims in the area of civil law are also provided by: 49

a) tort law (arts. 914 ff. GCC),
b) neighbourhood law (arts. 1003 ff. GCC), and
c) L. 2251/1994 on the protection of the consumer, as amended by l. 3587/2007.

[35] *I. Karakostas* (supra fn. 1) 521.

50 In regard to tortious liability, art. 914 GCC provides that "a person who unlawfully and through his fault has caused prejudice to another shall be liable for compensation". This provision, one of the most fundamental in the GCC, stipulates one of the broadest sources of obligations, the act or omission which is unlawful and due to fault, the civil delict, which on the fulfilment of the other conditions of the provision, i.e. prejudice (injury, detriment, damage) and causal relation between this act and the prejudice, creates an obligation to compensate on the party responsible[36]. When analysing the elements of art. 914 GCC, particularly in regard to environmental issues and the presence of GMOs in non-GM crops, the following remarks must be made:

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

51 An answer to this question is given hereinabove under the special liability regime.

(b) How is the burden of proof distributed?

52 In order to establish tortious liability according to art. 914 GCC, the plaintiff must prove the causal link between the tortfeasor's culpable and illegal act and the sustained damage. In regard to environmental matters, however, this proof is difficult, because either the damage may be the result of the behaviour of various persons or it cannot be proved to which extent and to which degree the tortfeasor's behaviour has contributed to the result or even because a relatively long period of time may have elapsed between the tortfeasor's behaviour and the environmental damage[37]. Therefore the reversal of the burden of proof according to the "principle of the origin of risks" or the "principle of the fields of influence" and by applying, *by analogy*, art. 925 of the GCC is indicated not only for the proof of culpability[38] but also for the proof of the causation link. In order to get damages, the plaintiff has to prove that he has sustained damage and that the cause of the damage derives from the circle of the defendant's (who here is the releaser of GMOs) activities, that means that the plaintiff has to prove a "minimum causality"[39].

53 In order to avoid liability, the defendant, in cases of environmental liability, has to prove that the cause of the damage lies out of the field of his responsibility or danger, that he has taken all measures of care and providence imposed

[36] *M. Stathopoulos* (supra fn. 6) no. 39.
[37] *I. Karakostas* (supra fn. 1) 482 with references to French and German literature.
[38] For which see hereinafter the answer to the correspondent question under the general liability scheme.
[39] In cases of the so called "industrial illnesses" the proof of the "industrial provenance" of the illnesses is a "minimum causality" necessary for the establishment of a claim for damages. See *I. Karakostas* (supra fn. 1) 483.

by the general principles of the law and, therefore, no causation link exists between the damage and his activity. However, a differentiation must be made for the releaser of GMOs. The latter, according to the aforementioned should not be given the said defence. Due to the uncertainty of whether there is a risk from the release of GMOs, and because such uncertainty should work in favour of health and environment, the causation link should be established and the releaser should be held liable even if he has taken all measures of care and providence imposed by the general principles of the law.

54 The difficulty, sometimes impossibility, in proving culpability and the causation link is due to the difficulty of entering into the fields of the source of the environmental risk and of finding out the mechanisms of their operation and liability or even to the eventual destruction of the substance or the elements that were the cause of the environmental degradation. Therefore, in cases of environmental liability, the principle of "*prima facie* proof", already applied by the German jurisprudence[40], should be also adopted by the Greek courts.[41] The "*prima facie* proof" principle is based on an estimate of probabilities, according to which, a conclusion is made regarding the causation link from facts that present, as a rule, a usual course and are provoked from a fully proven cause (emission of polluting waste in the atmosphere, on the earth or in the water), according to the certain conclusions of science, to the deductions of common experience and of logic. The other way round, from a (fully) proven particular result (environmental accident) it is deduced that the environmental conditions of care and providence have been violated.

55 When applying the "*prima facie* proof" principle in cases of environmental liability the judge must be fully convinced of the causation link or the violation of the environmental condition. His conviction will be based on the certain conclusions of science and on the deductions of common experience and of logic that lead to a certain deduction according to the usual course of things (indirect proof)[42]. A differentiation must be made for the releaser of GMOs also to this point. The judge need not be fully convinced of the causation link. According to the precautionary principle, which should apply here, only indications should be sufficient. Complete proof of the causative link between the release of the GMOs and the specific disease by its release should not be necessary, or, in other words, according to Community case law, the existence of substantial scientific evidence in terms of the actual possible adverse health effects should not be required.

[40] See relatively *P. Gottwald*, Schadenszurechnung und Schadensschätzung (1979) 197 ff.; *P. Kargados*, Zur Beweislast bei der Haftung für Umweltschäden, in: Festschrift für Günther Baum gärtel (1990) 191 ff.; *Th. Lytras*, Zivilrechtliche Haftung für Umweltschäden (1995) 360 ff.

[41] Greek jurisprudence applies the principle of "*prima facie* proof" to cases of producer's liabil ity.

[42] *I. Karakostas* (supra fn. 1) 484, 485.

(c) How are problems of multiple causes handled by the general regime?

56 With regard to the matter of multiple causes, art. 926 GCC establishes joint and several liability on the following occasions:

57 1) when the damage is caused by the multiple tortfeasors' collective act (art. 926 GCC sent. 1 subpar. a). The term "collective act" is interpreted widely as to include any kind of causal collaboration or participation in the perpetration of the tort and the provocation of the damage, irrespectively of whether the acts of the multiple tortfeasors occurred simultaneously, successively or in parallel with the other[43]; therefore it includes:

a) Complicity by means of co-deciding and co-executing the tort, i.e. cases where several persons act jointly and each one of them fulfils the requirements of tortious liability.[44]
b) The acts of the "instigator", of the "direct accessory" and of the "simple accessory"[45] of the tortfeasor. Intention is not a prerequisite; negligence suffices for the application of art. 926 GCC.[46]
c) Cases of several persons committing the tort by acting independently and individually and without any conscious cooperation (lateral abettors).[47]
d) Cases where none of the multiple tortfeasors' acts alone could have provoked the damage (necessary causality, *notwendig koinzidierende Kausalität*).[48]
e) Cases where damage is caused by the simultaneous acts of multiple tortfeasors, each of which in itself would have been sufficient to cause the victim's loss (cumulative causation).

[43] *Ap. Georgiades*, in: *Ap. Georgiades/M. Stathopoulos* (eds.), Civil Code (1982) art. 926 no. 5; *I. Deliyannis/P. Kornilakis*, Law of Obligations Special Part (1992) vol. III, 218.

[44] According to the prevailing view in theory (*Ap. Georgiades*, art. 926 no. 6; *I. Deliyannis/P. Kornilakis,* supra fn. 43) the term "collective act" in art. 926 GCC is not restricted to intentional complicity but it includes the so called "negligent complicity" as well. *Contra P. Filios*, Law of Obligations Special Part (4th ed. 1998) vol. II/2, 92, who adheres to the doctrine of the penal law, which requires intention.

[45] A definition of the terms "instigator", "direct accessory" and "simple accessory" is found in art. 46a, 46b and 47 of the Greek Penal Code (GPC), which defines the "instigator" as the person who has brought about the tortfeasor's decision to commit the tort, the "direct accessory" as the person who assisted the actor directly in and during the commission of the tort and the "simple accessory" as the person who helped the tortfeasor in any way before or during the commission of the tort.

[46] Ap. *Georgiades*, art. 926 no. 7; *I. Deliyannis/P. Kornilakis* (supra fn. 43) 218 219.

[47] See respectively *Ap. Georgiades*, art. 926 no. 8; *I. Deliyannis/P. Kornilakis* (supra fn. 43) 219.

[48] *Ap. Georgiades* (supra fn. 43) art. 926 no. 9. E.g. A1's factory emits harmless chemical waste and so does A2's factory. However, when these harmless chemical wastes are fused, they produce by a chemical reaction a poisonous substance which contaminates the river and results in fish being killed. A1 and A2 are held jointly and severally liable according to art. 926 GCC, because the damage was caused by their "collective act" (wide interpretation of the term). However, it has been maintained that these cases fall under art. 926 sent. 1 subpar. b concerning liability in parallel (see respectively *M. Karasis*, Joint and several debt, 1990, 279 fn. 87a and 282; *P. Filios* (supra fn. 44, 93). It must be noted, however, that the discord between the scholars is strictly theoretical, because regardless of where the cases of *notwendig koinzidierende Kausalität* are placed i.e. either in art. 926 sent. 1 subpar. a GCC concerning a collective act or in art. 926 sent. 1 subpar. b GCC concerning liability in parallel the actors are in any case held jointly and severally liable.

f) Cases of posterior complicity: Art. 926 GCC applies by analogy when an act – though not causally connected with the provocation of the damage – maintains and/or worsens the damage already caused.[49]

2) When multiple persons are held liable in parallel (art. 926 sent. 1 subpar. b GCC), e.g. the employee of an industrial company causes environmental damage by acting illegally and out of fault; in such a case both the employee and the company are held liable (art. 926 sent. 1 GCC read with arts. 914, 922 GCC).[50] 58

3) When more than one person acted either simultaneously or successively and it is impossible to determine whose action caused the damage (art. 926 sent. 2 GCC). 59

In particular, according to art. 926 sent. 2 GCC, each one of the several potential tortfeasors is held jointly and severally liable for the damage, if it cannot be ascertained whose action caused the damage or to what extent a particular action contributed to the damage. 60

Moreover, art. 927 GCC provides for the relations between the multiple tortfeasors *inter se.* It dictates that if one of them totally compensates the person suffering the damage, he is given the right of recourse against the rest of them. In such a case the liability among the multiple tortfeasors is determined by the court, depending on each one's contribution to the fault and if such a contribution cannot be ascertained, the damage is equally distributed among them. 61

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

The general rule of art. 914 GCC bases the liability on the subjective condition of fault (fault-based liability). Therefore, the tortfeasor is held liable only if he acted out of intention or negligence. It is being accepted, however, in theory[51] that cases of ecological harm must be treated in the same way as cases of product liability[52] as regards *the burden of proof*. The owner or possessor of a source of risk, exactly as the producer of a defective product, should be held liable for the damage caused, unless he proves that he is not responsible (*hybrid strict liability*). And this because in both cases the plaintiff (the consumer or the person who sustained the ecological harm) cannot throw light on the facts that have led to his damage. Such facts are found in the area of risks of the defend- 62

[49] *Ap. Georgiades* (supra fn. 43) art. 926 no. 12; *I. Deliyannis/P. Kornilakis* (supra fn. 43) 220.
[50] *Ap. Georgiades* (supra fn. 43) art. 926, no. 16.
[51] See *I. Karakostas* (supra fn. 1) 295.
[52] For an analysis (in English) of the legal basis of the producer's liability in Greece see *E. Dacoronia,* Mass torts: a Greek approach, RHDI 47, 89 91, with further references to the Greek literature.

ant (producer or owner or possessor of a source of risk) and the latter, who has a general duty of care and providence[53], arising from the requirement of good faith taking into consideration business usages (arts. 200, 281 and 288 of the GCC), has to prove the absence of fault on his part in order to avoid responsibility ("principle of the origin of risks" or "principle of the fields of influence")[54]. This solution can be achieved in Greece by applying to the above cases, *by analogy*, art. 925 of the GCC that deals with the responsibility of the owner or possessor of a building or structure in case of damage caused by their total or partial collapse; the said persons are presumed to be responsible, unless they prove (reversal of the burden of proof) that the collapse is not due to a defective construction or to a faulty maintenance of the building or the structure.

63 Concerning GMOs, the absence of scientific certainty of the risk should not be used by the releaser as a defence in order to avoid liability. To the contrary, the scientific uncertainty should create a presumption in favour of the health and the environment and the releaser of the GMOs should prove that there is no risk from their release.

64 Abiding by administrative provisions does not suffice for the exclusion of fault and, therefore, for the exoneration from liability[55]. It is accepted that the bearer of a possible source of risk for the environment must take all precaution and safety measures required and not only the ones that are specifically prescribed by administrative provisions. The latter merely define the minimum standards to which the said bearer must comply and, therefore, compliance to them does not result in exoneration from liability[56].

65 If the polluter has acted in conformity to the law and has also taken all measures of providence and care, then he is not liable for any damage which may occur[57]. In cases of release of GMOs, however, if the releaser has acted in conformity with the Ministerial Decisions on GMOs, he must be held liable for any damage, which may occur even if he has taken all measures of providence and care due to the uncertainty of the risk caused by the GMOs.

[53] For details relative to this duty of the owner or possessor of a source of risk to take all meas ures of care and providence, a product of the German jurisprudence (called in German *Verkehrssicherungspflichten)*, see in the Greek literature *I. Karakostas* (supra fn. 1) 471 ff.

[54] Known in German as *Gefahrenbereich*, it is a product of the German theory and jurisprudence specially developed in the field of the producer's liability and introduced lately in the tort li ability for emissions. For references to the German literature see *I. Karakostas* (supra fn. 1) 477 fn. 34.

[55] See relatively AP (in full bench) 146/1960 Themis NA', 417; AP 343/1968 NoV 16, 943.

[56] *I. Karakostas* (supra fn. 1) 475 476.

[57] It must be noted here however that we have suggested (*E. Dacoronia*, Emissions and damage to the environment from the operation of an enterprise under licence from the competent authority [relation of arts. 1003, 914 of the GCC], PerDik 1997/1, 22, 23) that in such a case, the damage must be covered for reasons of equity, by analogy of other provisions of the GCC (e.g. arts. 387, 675 § 2, 918 etc.), which give such a possibility (i.e. which recognise a claim for reasonable damages to the discretion of the Court, if this is dictated by good faith and equity, even if the activities that caused the damage are legal).

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

66 Another basis that may be used to raise actionable claims because of the presence of GMOs in non-GM crops is founded in art. 1003 ff. on the so-called neighbourhood law. According to art. 1003, which states that "The owner of an immovable is bound to tolerate the emission of smoke, soot, exhalations, heat, noise, vibrations or other similar side effects originating from another immovable, provided that they do not substantially prejudice the use of his immovable or that they originate from a use which is ordinary in regard to the immovables of the region in which the offending immovable is situated", emissions which materially affect the use of land or emissions which are unusual for the area amount to an actionable nuisance.

67 This article is interpreted in light of the Greek Constitution (art. 5 § 1, 17 and 24) in a way so as to be construed as meaning that emissions, albeit common and ordinary for the area, do not have to be tolerated by the neighbour if they contravene the constitutional principle of preserving a viable vital area and infringe his right to use his property[58]. Also note that, as the emissions nowadays have the tendency to expand easily, the protection given by arts. 1003 ff. is recognised not only to the bordering neighbour but also to the so-called "ecological" neighbour, whose land bears the consequences of the emissions[59].

68 The remedy provided for by art. 1108 GCC is the *actio negatoria* or *negativa*. The plaintiff making use of this action may ask that the defendant cease the offending activity and not repeat it in the future. Furthermore, the plaintiff may claim damages provided the preconditions of tortious liability are fulfilled. The provisions of neighbouring law on emissions may also apply to the provisions for protection of possession contained in arts. 984 and 989 GCC, resulting in similar claims raised against any alleged infringement of possession rights by unlawful emissions[60].

69 Art. 1004 GCC also gives the right to the landowner to raise a claim to forbid the construction or cease the operation of installations on neighbouring land, if the resulting illegal interference on his land can be unquestionably foreseen. If, however, the allegedly harmful installation operates either under a licence issued by the competent public authority or in accordance with special terms as

[58] See *I. Karakostas* (supra fn. 1) 314, 412.
[59] See *I. Karakostas* (supra fn. 1) 412 413.
[60] *I. Karakostas/I. Vassilopoulos*, Environmental Law in Greece (in English, 1999) 136.

specified by law, then, in order to raise a claim to cease the activity, the damage according to art. 1005 GCC must be actual and not merely expected.

4. Damage and remedies

(a) How is damage defined and measured?

70 The environmental damage must be construed as any prejudice to elements of the vital area, which also results in material losses, e.g. pure economic loss[61].

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

71 Loss of profit also constitutes damage which must be made good according to art. 298 sent. 1 GCC. Art. 298 sent. 2 GCC, however, sets certain limits as to the legally relevant loss of profit by providing that only "that which can be expected as probable profit in the usual course of events or by reference to the special circumstances and particularly to the preparatory measures taken" shall be reckoned as loss of profit. It is necessary, that is, for the profit to be able to be expected by an average, reasonable man on the basis of objective criteria and, moreover, to be anticipated in advance, i.e. at the time of the event causing the damage.[62] We fear, however, that the farmer could not easily prove that his loss is the outcome of the customers' fear that his products are no longer GMO free.

(c) Where does your legal system draw the line between compensable and non compensable losses?

72 Same as above in respect of difficulties of proof.

(d) What are the criteria for determining the amount of compensation in general?

73 According to the difference theory, the amount of compensation is determined by comparing the status of property existing after the prejudicial event with the property which would have existed had the prejudicial event not taken place. The difference between these two magnitudes reveals the damage incurred[63].

74 When calculating damages, the effect of the prejudicial event on all property items of the injured party is to be taken into consideration, provided that the precondition of causal link is also fulfilled[64]; in such a case, the actual damage

[61] See *I. Karakostas* (supra fn. 1) 488 ff.
[62] *M. Stathopoulos* (supra fn. 6) no. 305.
[63] *I. Karakostas* (supra fn. 1) 491; *M. Stathopoulos* (supra fn. 6) no. 301.
[64] *I. Karakostas* (supra fn. 1) 491 492; *M. Stathopoulos*, supra.

the injured party has sustained, which includes the *damnum emergens* and the *lucrum cessans*, the direct and indirect as well as the present and future damage, is compensated for[65].

Compensation in principle is paid in money (art. 297 sent. 1 GCC). Art. 297 sent. 2 GCC provides however that the court, taking into consideration any special circumstances, may order, *in lieu* of compensation in money, the restoration of the former state of affairs (*status quo ante*) if this is not contrary to the interests of the creditor[66]. In regard to environmental damage, the compensation *in natura* appears more appropriate in cases where the determination of the damage according to the difference theory is impossible[67]. 75

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

There is no financial limit to liability. When the injured party has contributed to the damage or to its extent, it is possible that the liability of the injuring party is diminished or even excluded according to art. 300 GCC. 76

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

In Greece there is no detailed regulation on insurance coverage for environmental damage. Only art. 23 of l. 2496/1997 on insurance contracts, alteration of the legislation on private insurance and other provisions[68] provides for the insurance of environmental damage, which covers the expenses for the restoration of the natural environment. The insurance coverage is, however, restricted to cases where the damage was caused by a sudden and unexpected event. On the contrary, civil liability for pollution which is gradually caused as the result of a continuous process is not covered by the insurance policy[69], even though in most cases damage to the environment occurs progressively, and a relatively long period of time usually elapses between the detrimental act and the environmental damage. Therefore, the largest proportion of environmental damage is left outside the ambit of application of l. 2496/1997 and, from that respect, the said law offers little to the protection of the environment. However, in the introductory report of the law, it is stated that the contracting parties have the discretion to expand the insurance coverage to other types of damage, as art. 23 is not *ius cogens* in so much as it can be altered in favour of the insured[70]. In regard to the restoration function of the insurance policy, there is no doubt that the person that sustains the damage is given recourse against the solvent insurer and not merely against a possibly insolvent operator. 77

[65] *I. Karakostas* (supra fn. 1) 492.
[66] *M. Stathopoulos* (supra fn. 6) no. 304.
[67] *I. Karakostas* (supra fn. 1) 493.
[68] FEK Issue A' 87/1997.
[69] *I. Rokas*, Private Insurance (1998) 170.
[70] *I. Karakostas* (supra fn. 1) 501 502.

78 In view of the lack of a general obligation of insurance, it has been suggested[71] that: either a legal person of public law should be formed, members of which should all be operators of facilities, who gain profit by engaging in activities, which directly or indirectly result in the degradation of the environment; the said legal person will be liable for damages, which will be paid up by capital created by the contribution of the members of the legal person, or annual contributions should be imposed and managed by the state, or the enterprises which are expected to cause environmental damage. The person who sustains the damage will then have the opportunity to either ask to be compensated by the state or file an action against the polluter.

(g) Which procedures apply to obtain redress in such cases?

79 Apart from the ordinary action, the procedure of provisional measures provided by the Greek Code of Civil Procedure in its arts. 682 ff. also applies to cases of environmental pollution, so that a court judgment is rapidly given.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

IV. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

80 Specific rules which cover costs associated with sampling and testing are found in art. 6 § 4 of the Joint Ministerial Decision 332657/2001[72] and these require seed enterprises to bear the cost of re-examination of certain seeds (sugar beet, rape, maize, soyabean, cotton, and certain varieties of tomato) if the results of the first examination are challenged.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

81 For the farmer who has sustained damage from the release of GMOs, general tort rules would apply and costs associated with sampling and testing for GMO presence borne by him can be included to the amount of damages to be asked from the releaser.

[71] See *I. Karakostas* (supra fn. 1) 506.
[72] FEK Issue B' 176/2001.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

As the law stands, it will be difficult to recover such costs if there is no actual GMO presence. 82

V. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no such rules in force or planned. 83

2. General rules of jurisdiction and choice of law

In Greece there is neither a special jurisdiction nor a specific conflict of law rule that addresses the issues of environmental liability. Therefore, the general rules of choice of law and jurisdiction apply to environmental cases. 84

Generally, the international jurisdiction of the Greek courts is established if they have territorial competence over the subject matter (art. 3 combined with arts. 22–41 GCCP). As far as environmental matters are concerned, arts. 29 and 35 GCCP can apply. Art. 29 thereof provides that actions relating to property interests on immovables, including leases but not purchase and sale contracts, are allocated to the courts of the *situs*, while art. 35 dictates that actions on tort constituting simultaneously a criminal act may be brought at the place of either the conduct or its effects. 85

Arts. 29 and 35 differ not only in regard to their ambit of application but also on the exclusive and concurrent nature of the jurisdiction they establish. Therefore, in case of environmental damage, which constitutes a criminal act and simultaneously a neighbour law dispute, the Greek courts will have exclusive jurisdiction if art. 29 GCCP is invoked or concurrent jurisdiction if art. 35 GCCP is invoked[73]. 86

The said provisions are crucial not only in regard to the establishment of the Greek courts' international jurisdiction, but also in regard to the recognition and enforcement of foreign judgments. According to arts. 323 and 905 GCCP, a precondition for the recognition and enforcement is that the case falls under the international jurisdiction of the court which issued the judgment according to the Greek law. Therefore, if it is deemed that the Greek courts have exclusive jurisdiction over a case judged abroad, the recognition and enforcement of the foreign judgment cannot be effectuated, even if the judgment itself is favourable to the injured persons and to the environmental goods infringed. In view of the above, it is suggested[74] that it would be positive for the protec- 87

[73] *I. Karakostas* (supra fn. 1) 726.
[74] *I. Karakostas*, supra.

tion of the environment to introduce a provision on international jurisdiction, which would not establish exclusive international jurisdiction, but would allow the choice of the competent court.

88 Furthermore, the Court of the European Communities has held (case *Mines de potasse d' Alsace*) that according to art. 5 § 3 of the Brussels Convention, which provides for the international jurisdiction of the member states in case of torts, the place where the prejudicial activity took place as well as the place where its effects have been displayed are crucial to the matter. It is up to the plaintiff, i.e. the person who sustained the damage, to decide before which court the case will eventually be brought.

89 The Court of the European Communities with the said decision has acknowledged the possibility of forum shopping for reasons of apt judicial proceedings. However, the solution given also creates a *favor laesi*, as it functions as a protection mechanism for the interests of the injured party[75].

90 In regard to choice of law rules, the problem first encountered has to do with the legal characterization of environmental disputes in light of the different views and solutions adopted among different legal orders[76]. As far as the Greek legal order is concerned, it is generally accepted that it is possible to invoke and resort to more than one legal basis, which have different scopes of protection and different legal consequences (e.g. provisions on neighbour law, tort law etc.). However, according to the prevailing view, matters concerning ecological disputes are better dealt under the provisions on torts. Art. 26 GCC provides that tort issues are governed by the law of the state where the tort was committed. As far as environmental matters are concerned, criticism has been made on the ground that the *lex loci delicti commissi* does not provide explicit answers in case the tort is linked with multiple places. There is respectively doctrinal dispute on the meaning of the phrase "where the tort was committed", and in particular on whether it refers to the place of the conduct or of its effects or of both with the plaintiff having the right to choose or to the place where the main aspect of the tort is located[77].

91 It has been suggested[78] that the place to which the environmental damage is more closely connected is the place from where the ecological disorder stemmed and for the first time displayed, namely the place where the source or the facility of the environmental risk is located: The legal order of the said place was the first one which dealt with the legal and economic parameters of the matter. The occupational activity, which poses the environmental risk, has been established and operates under the said legal frame, therefore it is

[75] *Chr. Jünger*, Der Kampf ums Forum, *Rabels Zeitschrift für ausländisches und internationales Privatrecht* (RabelsZ) 1982, 714 ff.; *I. Karakostas* (supra fn. 1) 728.
[76] *I. Karakostas* (supra fn. 1) 730.
[77] *I. Karakostas* (supra fn. 1) 734. See also (in English) *Ph. Kozyris*, Ch. 16 I B 2, in: *K. Kerameus/ Ph. Kozyris* (eds.), Introduction to Greek Law (2nd ed. 1993).
[78] *I. Karakostas* (supra fn. 1) 739.

required that the imputation of the damage is also dealt with under the same legal frame. Besides, the most important and grave environmental consequences are as a rule displayed at the place where the source of the environmental risk is located. Accordingly, it is only reasonable to expect that the law of the said place is the most suitable to cope with the potential risk.

92 In case, however, that it is impossible to locate the source or sources of the environmental degradation, the place where the prejudicial consequences are displayed for the first time is regarded as the most suitable connecting link[79].

[79] *I. Karakostas* (supra fn. 1) 740.

Economic Loss Caused by GMOs in Hungary

Attila Menyhárd

I. Special liability or compensation regimes

The most comprehensive genetic technology related legislation in Hungary is the Act No. XXVII of 1998 on genetic technology activity as it is amended[1] by the Act no. CVII (further referred to as the Genetic Technology Act). This Act provides for a special liability regime for genetic technology activity in general[2] as well as for liability for damage caused as a result of incomplete segregation of GM and traditional crop production. As a general rule § 27 of the Genetic Technology Act provides that as genetic technology activity may imply considerable hazard the liability for dangerous activities (§ 345 ff. of the Hungarian Civil Code) shall be applied to liability for damage caused by genetic technology activity. A similar regime is established for liability for incomplete segregation. § 21/D subpars. (5) and (6) of the Genetic Technology Act provide that for liability for damage caused as a result of incomplete segregation of GM and traditional crop production, § 345 and § 346 of the Hungarian Civil Code (the strict liability regime for dangerous activities) are to be applied. If, however, the victim as the owner or user of the neighbouring land has consented in written form to the growing of genetic plants, according to § 21/C of the Genetic Technology Act, the general liability regime is to be applied (according to §§ 339–342 and § 344 of the Hungarian Civil Code). 1

§ 345 of the Hungarian Civil Code – which is referred to in these provisions of the Genetic Technology Act – establishes that the operator of an especially dangerous activity shall be liable for damage caused by such an activity and the operator may exonerate himself only by proving that the cause of the damage fell outside the scope of the dangerous activity and was unavoidable or that the victim was the one who caused the damage wrongfully. § 346 of the Hungarian Civil Code (subpars. 1–4) provides that if damage is caused by two or more 2

[1] The amendment, which came to effect on 22 December 2006, establishes the special liability regime for incomplete segregation of GM crop production from the traditional ones.

[2] I.e. damage caused by genetic technology activities such as establishing an institution (e.g. a laboratory) that performs genetic technology activity, modification of genes, utilization of gene manipulated micro organisms in closed systems, emission, export, import, putting the output of genetic technology activity into circulation and elimination.

persons through an activity that involves considerable hazard, the general rules and regulations governing liability shall apply to their relationship with one another. If the cause of damage is not attributable to either of the parties, but it derives from a malfunction that occurred within the realm of activity involving considerable hazard performed by one of the parties, that party shall be liable for paying damages. If the cause of damage is a malfunction that occurred in the sphere of both parties' activity involving considerable danger and, furthermore, if such malfunction cannot be attributed to one of the parties, each party shall, since individual responsibility cannot be established, bear liability for his own loss. The regulations pertaining to liability for occupational accidents are established by separate legal regulations.

3 The scope of regulation provided by the Genetic Technology Act, including the provision concerning liability, covers the production and distribution of GM-products as genetic technology activity in general as well as damage caused in the course of growing genetically modified crops neighbouring traditional crop production. Risks described in the introduction to the questionnaire as economic damage resulting from actual or feared GMO presence in non-GM crops are covered with this liability rule only in so far as they are the result of incomplete segregation from neighbouring cultivated traditional plants. There is no other compensation regime that covers these kinds of risks.

II. General liability or other compensation schemes

1. Introduction

4 There are basically three liability regimes to be applied for such damage. The first is the basic norm of liability: § 339 subpar. (1) of the Hungarian Civil Code provides that if someone causes harm unlawfully to another person, the tortfeasor is obliged to pay damages, unless (s)he proves that (s)he acted as (s)he could in the given situation be generally expected to have acted (i.e. according to the general standard of conduct). There are four prerequisites to liability:

1. damage;
2. unlawfulness of the damage;
3. causal link between the conduct of the tortfeasor and the harm suffered; and
4. accountability of the tortfeasor's conduct (a specific concept of fault).

5 The burden of proof regarding damage and causation rests on the plaintiff, the absence of fault on the defendant. Unlawfulness of the damage is presumed. If the aggrieved party (the plaintiff) proves that (s)he suffered damage and this was the result of the conduct of the tortfeasor (the defendant), the defendant shall be liable unless (s)he proves that (s)he acted according to the generally expected standard of conduct or if (s)he proves that causing harm was lawful in the given situation. In order to prove lawfulness the tortfeasor has to rely on a special exceptional statutory regulation (or a provision of the Civil Code),

which allows him to cause harm in the given circumstances. The main characteristics of the system of Hungarian tort law are that:

- it is a system based on a general clause of liability;
- fault is an objective concept: failure to act according to the general standard of conduct itself establishes fault;
- the burden of proof is reversed; fault is presumed and the tortfeasor has to prove that he was not at fault (he acted according to the general standard of conduct) in order to be exonerated from liability;
- this is a system of open rules and these open rules provide great power to the courts and allow them to establish and use the proper guidelines to assess tort cases.

Accordingly, Hungarian tort law as a law in action is a flexible system.[3] The result of this system is that a great part of Hungarian tort law is judge-made law, which applies a complex system of criteria to assess and decide tort law cases and to draw the boundaries of liability.

The second regime is strict liability for especially dangerous activities. § 345 Hungarian Civil Code provides that a person who carries on an activity involving considerable hazards shall be liable for any damage caused thereby. Only being able to prove that the damage occurred due to an unavoidable cause that falls beyond the realm of activities involving considerable hazards or from an activity attributable to the aggrieved person shall relieve such person from liability. Neither the scope of the considerably hazardous activities nor the carrier or operator of the activity is defined nor are guidelines provided in the Civil Code. The guidelines for the assessment and scope of the considerably hazardous nature of the activity and for determining the person who shall be liable for that activity are elaborated in the court practice. In qualifying an activity as a considerably hazardous one, the court shall consider all the circumstances of the case.[4] The person, who is the owner, or who is in the position to control the activity, to prevent damage, or whose direct interest is in pursuing the activity (e.g. a land-owner who orders chemical vaporization) can be treated as the operator of the activity and will be liable as such under § 345 Hungarian Civil Code. There is no distinction between holding a dangerous thing and pursuing a dangerous activity: the holding of a dangerous thing can be a dangerous 6

[3] Indeed just as it has been established by Walter Wilburg. See *W. Wilburg*, Entwicklung eines beweglichen Systems im bürgerlichen Recht (1950) The Development of a Flexible System in the Area of Private Law (transl. by H. Hausmaninger, 2000) and *idem*, Zusammenspiel der Kräfte im Aufbau des Schuldrechts, 163 *Archiv für die civilistische Praxis*, 1964, 364 ff.

[4] There are activities which under certain circumstances will be considered as considerably haz ardous resulting in strict liability while under other circumstances not. Liability for damage caused by motor vehicles or industrial machines, by chemicals, explosives, acids or other dan gerous materials, by activities which require special prevention such as mining, well digging etc. are treated as considerably hazardous ones. The keeping of wild animals and traditional environmental damage are also governed by the liability for considerably hazardous activities. Building construction work also can be qualified as extremely hazardous, while certain activi ties such as using household machines, using fire e.g., lighting a cigarette are regularly not, even if they can really be dangerous.

activity falling under § 345 Hungarian Civil Code. There is no special form of liability for enterprise liability in Hungarian tort law.

7 The third liability regime that may cover cases specified in the questionnaire is product liability.[5] Liability of the producer for damage caused by the product as a subject of special regulation is the result of the impact of European Community legislation. In Hungary the Product Liability Directive has been implemented by the Act X of 1993 on Product Liability. Even though the Product Liability Act as the implementing measure of the Directive has been in force for more than ten years now, no practice to be analyzed from the point of view of usually compensated damage has been developed. Consequential loss is not covered by the product liability regime and therefore such losses cannot be compensated under product liability regulations.[6]

8 For cases specified in the questionnaire, these three regimes may be relevant although product liability may come to the fore in specific cases. The concept of extremely dangerous activity triggering the specific form of strict liability, according to § 345 of the Hungarian Civil Code, is open and there is no closed list for what kind of activities may or shall be ranked under this heading. Courts may establish that strict liability for dangerous activities according to § 345 of the Civil Code shall be applied to liability cases specified in the questionnaire. Since § 345 of the Civil Code does not define what kind of activities shall be deemed as extremely hazardous this is an open category allowing a wide "playing field" to the courts. Even if there are typical activities belonging to this category, sometimes courts use the openness and abstract nature of this notion simply to allocate the risk as they think fit through establishing strict liability. The regulation, which provides that strict liability for dangerous activities shall be applied to liability for gene technology activity and for incomplete segregation of traditional and GM crop production – even if the legislation does not specifically cover economic damage resulting from actual or feared GMO presence in non-GM crops in general – would presumably influence the courts and would turn them to the application of § 345 of the Hungarian Civil Code on strict liability for especially dangerous activities. This would fit into the risk allocation approach that courts seem to follow as they decide which activities shall be deemed especially dangerous resulting in the application of strict liability according to § 345 of the Civil Code.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

9 Causation is one of the general prerequisites of liability and a very complex phenomenon in theory and in practice. According to the general liability rule of

[5] I am not quite sure whether product liability would really come into consideration in cases cov ered by this project but at this moment I could not exclude this possibility.

[6] *Bírósági Határozatok* (BH) 2005 no. 354 (Supreme Court, Legf. Bír. V. Pfv. VII. 20.620/2004).

the Civil Code (§ 339), the wrongdoer shall be liable if he causes the harm. If a causal link cannot be established, a precondition of liability is missing. One cannot be liable for damage which one did not cause. Legal theory and practice focus on problems of determining the relevant cause and risk allocation instead of natural causation. In special forms of liabilities, such as liability for considerably dangerous activities (§ 345 Civil Code), liability is not established simply by natural causation but according to an implied obligation of certain persons, for example, to keep the dangerous activity safe for others. The liable person is defined through regulation – e.g. the person who shall be treated as running the dangerous activity (the operator) – without the general test of causation.[7] Causation shall be established between the dangerous character of the activity and the damage.

10 According to the general rule of liability, the but-for test is accepted as the first necessary step for establishing liability.[8] The theoretical explanations of causation in tort law, however, concentrate on establishing the legally relevant cause instead of natural causation. Within the general form of liability if the aggrieved person (the plaintiff) cannot prove[9] the causal link between the defendant's conduct and the harm, the court will dismiss the claim. According to the general (or basic) rules of liability, one cannot be liable if one's activity or omission was not a necessary cause of the harm suffered by the victim.

11 Causation is an element of the "flexible system" in Hungarian tort law. It means that the court has to apply an evaluation method to choose the relevant causes from the causal chain. The causal link must be established between the breach of duty (not to cause harm)[10] and the damage. It is not enough to consider the objective chain of events leading to the harm: the judge has to look for the relevant cause of the harm.[11] According to legal theory, the causal link between the harm and the tortfeasor's conduct is established if three concurrent preconditions are met: the harm could not have occurred without the tortfeasor's conduct (but-for test); the conduct is attributable to the tortfeasor; and it is possible to influence the tortfeasor's conduct with the application of legal sanction (the legal sanction may have a preventive effect).[12]

[7] Causation is established in these special forms of liability only on the level of theoretical explanations, e.g. the caretaker is a cause of the harm caused by the child in so far as she did not act while caretaking as was generally expected. *F. Petrik*, A kártérítési jog (1991) 30.

[8] *Gy. Eörsi*, Kötelmi jog általános rész (8th ed. 1988) 269.

[9] As far as the preconditions of liability are concerned, the Hungarian court practice takes a very strict line on the burden of proof. It must be taken into account that the civil procedure rules are based on an unbound system of evidence where the court is not bound by the evaluation of proof. The conviction of the court is decisive.

[10] The standpoint of Hungarian tort law is the principle that it is prohibited to cause damage to others except when the law provides otherwise.

[11] It is a kind of theory of adequate causality. *Gy. Eörsi*, A polgári jogi kártérítési felelősség kézikönyve (1966) 263.

[12] *F. Petrik* (supra fn. 7) 27. The third precondition (prevention) is stressed in legal theory but does not appear explicitly in court decisions.

12 Causation is a very important factor in limiting liability as well. Limitation of liability is as much inherent in a tort law system as liability itself. It follows from the very flexible structure of tort law regulation that the legislator in the two most important aspects of liability – i.e. accountability and causation – makes way to the greatest extent to the court practice, leaving the consideration of the case entirely in the hands of the judge. It means that if one tries to seek the limitations of liability, they also shall be found in the court practice. Eörsi, whose liability theory most influenced the tort law system of the present Civil Code, in an essay in 1985 on the limits of indirect causation[13] tried to list the possible limitation measures within causation. His starting point was that the principle of full compensation and causation are the two main pillars of tort law regulation. Causation is, however, a chain, which flows from the past to the future extending at the same time in different divergent branches creating new chains of causes. Such being the case, there are many situations where the full compensation is *summum ius, summa iniuria*. It is obvious that tort law must avoid such a situation and the main measure to do this is the limitation of liability, even when it is impossible to draw the exact barriers of indirect causation or indirect damage. According to Eörsi these possible limitation measures are: the restriction of liability to foreseeable harms;[14] the doctrine of adequate causality; the doctrine of normal consequences; the test of remoteness of damage; the doctrine of organic causal connection; the risk allocation aspect; the principle of proportionality; and the doctrine of reasonable connection between the harm and the threat. Trying to summarize how these doctrines contribute to the Hungarian court practice, one can say that the court may limit liability and refuse full compensation by dismissing the claim for damages if the harm was unforeseeable to the tortfeasor (foreseeability doctrine); it was beyond rational probability, was untypical or unique (adequate causality); it was beyond the normal consequences and was too unexpected;[15] if the harm as the consequence of the tortfeasor's conduct was too remote;[16] if in the causal link, the interference of an unexpected cause altered the normal foreseeable consequences and contributed to the causing of the harm;[17] if the damage

[13] *Gy. Eörsi*, A közvetett károk határai, in: Emlékkönyv Beck Salamon születésének 100. évfor dulójára (1985) 59 68.

[14] Eörsi reckons that foreseeability has not only a limitative effect, but an extensive one also. Ab stract foreseeability on the one hand has a limitative effect, because only actual foreseeability establishes liability, but actual foreseeability on the other hand may also be established in cases where the concrete process of the case could not have been foreseen. *Gy. Eörsi* (supra fn. 13) 62.

[15] That was the reason for dismissing the claim against a hospital in a case where a mentally ill person fled from the hospital, got on a train without a ticket and as the controller asked for the ticket, he committed suicide by jumping out of the train. *Gy. Eörsi* (supra fn. 13) 62.

[16] This is the case where someone cuts a telecommunication earth cable with a machine during excavation works and thousands of people (and factories) remain without telephone services and because of the damaged cable it is impossible to call the police, the fire brigade or the am bulance. In this case the tortfeasor shall not be liable for all these further consequential losses, because they are too remote. *Gy. Eörsi* (supra fn. 13) 63.

[17] This may be used as a limitative factor if the tortfeasor tempts a child into committing a crime and because of this the child's mother commits suicide. The tortfeasor shall not be liable for the death of the mother. *Gy. Eörsi* (supra fn. 13) 63.

was within the normal risk imputed to the aggrieved party;[18] or if it would be disproportionate considering the amount of damage and the degree of fault.[19] Hungarian courts are inclined to cut off the causal link at losses deemed too remote, and they use the concept of accountability to reduce the tortfeasor's liability to foreseeable losses or they simply solve the problem with the burden of proof regarding the causal link and the amount of the damage.

13 The burden of proof is allocated to the victim: the plaintiff has to prove that if the tortfeasor's conduct had not occurred, he certainly would not have suffered loss or with absolute certainty would have earned a certain profit. If the link of causation between the alleged damage and the presence of the GM crop has been proved by the victim, according to the but-for test, the question is whether or not the court would limit the liability on the grounds of risk allocation policy considerations. There are no specific rules allocating the costs of testing or of other means to establish causation.

(b) How is the burden of proof distributed?

14 According to the general doctrine, causation and damage are to be proven by the victim. The tortfeasor has to prove a ground of exoneration (the absence of fault i.e. that his conduct met the general standard, or a specific ground of exoneration in the case of specific forms of strict liabilities). There is a reversed burden of proof regarding fault (or other grounds of exoneration) but there is no reversed burden of proof regarding damage and causation. In practice, however allocation of the burden of proof is not a rigid and formalistic principle and some subjectivism cannot be excluded. Even if damage as the consequence of the presence of a certain GM crop is not to be presumed in the cases specified in the introduction to the questionnaire, the court may take the view that it is so and may shift the burden of proof that there are other possible causes of the damage (other sources of adventitious presence of GMOs) to the assumed tortfeasor.

15 Allocation of the burden of proof may be somewhat flexible in the context of a concrete civil procedure. This means that even if there are no rules or doctrines that would result in a reversed burden of proof explicitly or in the sense that the damage under certain conditions should be presumed to be the consequence of the presence of a certain GM crop (e.g. if it is established that the GMO farmer

[18] This is the basis for the limitation of liability if someone spoils a bridge or causes an accident and because of it the traffic is diverted to a longer route. The diverting of the traffic is an event, which may occur for a lot of reasons, even (and mostly) without someone's fault; that is why it is an event that everyone must count on and as such it is a general risk of life (*allgemeines Lebensrisiko*). This risk must be run with everyone and others cannot be held liable for this. *Gy. Eörsi* (supra fn. 13) 64.

[19] If in a so called cable case a whole district remains without electricity because of the conduct of the tortfeasor whose negligence was not gross, the liability covers the costs of reparation and the economic loss of the electricity operator but not the harms and losses of the people and businesses who had been left without electricity. *Gy. Eörsi* (supra fn. 13) 65.

failed to apply proper segregation measures) in the case of a very high level of probability or in apparent absence of other sources of adventitious presence of GMOs, the court would shift the burden of proof to the defendant and would require the defendant to prove that e.g. in spite of the failure to apply proper segregation measures the damage could not have been caused by him.

16 The question raises another aspect that should be addressed in this paragraph separately, namely the causation of omission. It is well established in Hungarian tort law theory and practice that an omission can be the cause of a harm and may establish liability. The wrongdoer shall be liable for his omission if the damage would not have occurred had he acted according to his duty (as imposed on him by law).[20] In the case of an omission, liability is established by not starting a causal process which would have avoided the harm. If the breach of the duty is not a natural cause of the harm, the person who has breached his duty shall not be liable. If, for instance a doctor is called or arrives too late to a seriously injured person but it is proven that the injured person would also have died if the doctor had been present earlier, the omission is not a cause of the harm, so liability cannot be established on the basis of a breach of duty.[21] The same holds for cases where a physician omits his duty to inform the patient about the possible risks and side effects of medical treatment or intervention. If the patient would have consented even if he had been correctly informed and would not have decided otherwise, the court will reject the claim for damages for breaching the duty to inform on the grounds of lack of causation.[22] If a farmer as a possible tortfeasor utilizing GMOs and growing GMO crops failed to apply proper segregation measures, the plaintiff has to prove that if the farmer had complied with the general requirement imposed on him by law (either by regulation or as a part of the required general standard of conduct) and applied the proper segregation measures, the harm (his loss resulting from GMO "contamination") would not have occurred. This would establish causation and this should be proved by the victim.

17 Different sources of adventitious presence of GMOs (e.g. seed impurities, outcrossing with neighbouring crops, volunteers, transport, storage) shall be taken into account in the course of establishing causation. The actual or possible different sources of adventitious presence of GMOs in a given case may make the burden of proof on the victim stricter: the victim has to prove that even if there are other possible or actual sources of adventitious presence of GMOs the alleged tortfeasor's activity is (solely in itself or as one of multiple causes) the cause of the damage. If there does not seem to be any other possible or actual sources of adventitious presence of GMOs, the court would be more ready to accept that the alleged tortfeasor's activity is the cause of the damage. One has,

[20] A Magyar Népköztársaság Polgári Törvénykönyve az 1959. évi IV. törvény és a törvény javaslatának miniszteri indokolása [Motivation for the Hungarian Civil Code] (1963) The motivation for § 339.

[21] *F. Petrik* (supra fn. 7) 27.

[22] *Á. Dósa*, Az orvos kártérítési felelőssége (2004) 99.

however to take into account the relatively flexible attitude of the courts in establishing the burden of proof: a high enough probability may shift the burden of proof to the other party. The court would not require the victim to prove that there are no other possible or actual sources of adventitious presence of GMOs as the alleged tortfeasor's activity in order to establish the defendant's liability.

(c) How are problems of multiple causes handled by the general regime?

There are no special rules, principles or doctrines on alternative, potential or uncertain causation in Hungarian tort law theory and practice. Neither are there such rules, principles or doctrines that would channel liability to a particular person in the context of multiple causation or multiple tortfeasors. The Hungarian Civil Code provides special regulation for damage caused by multiple tortfeasors. According to § 344 of the Civil Code, if damage is caused jointly by two or more persons, their liability shall be joint and several towards the aggrieved person, while their liability towards one another shall be divided in proportion to their respective degree of responsibility. Liability for damages shall be divided in equal proportions among the responsible persons if the degree of their responsibility cannot be established. The court shall be entitled to declare joint and several liability and condemn the persons having caused the damage in proportion to their respective contributions if doing so would not jeopardize or considerably delay the compensation for damage or if the aggrieved person has himself contributed to the occurrence of the damage or has procrastinated in enforcing his claim without any excusable reason. In the literature and in practice there is a controversy about whether the two or more persons should act with a certain degree of common intention or whether they can act independently to be held jointly and severally liable for the damage. In the literature there are opinions according to which common intent is a necessary requirement for establishing joint and several liability.[23] This view is not in accordance with the motives behind the draft of the Civil Code which explicitly states that common intention of several tortfeasors is not a precondition for treating them as joint or multiple tortfeasors in the meaning of § 344 of the Civil Code. More authentic interpretations also stress the objective character of the assessment and that common intent is not a precondition of common liability; the object of the tortfeasors' conduct is irrelevant. If, for instance, two cars collide and as a result of the accident someone who is travelling in one of the cars is injured, the two car drivers shall be treated as multiple tortfeasors and are jointly and severally liable.[24] Mere interdependence in causation is, however, not always enough for establishing common liability. If someone negligently fails to fulfil his obligation and this makes it possible for someone else to cause a harm, (s)he shall also be jointly and severally liable with the tortfeasor who caused the harm directly. The two main principles for rendering

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[23] *B. Kemenes/L. Besenyei*, A kártérítés általános szabályai, in: *Gy. Gellért* (ed.), A Polgári Törvénykönyv Magyarázata (2002) 110 ff., 1120.

[24] *K. Benedek/M. Világhy*, A Polgári Törvénykönyv a gyakorlatban (1965) 349.

joint and several liability are prevention and the provision of a better chance of compensation for the claimant. The distinction between – jointly and severally liable – multiple tortfeasors and several independently liable tortfeasors can be found in terms of causation: the tortfeasors are jointly and severally liable multiple tortfeasors if the behaviour of each is a *conditio sine qua non.* The tortfeasors shall not be jointly and severally liable if there is no causal interdependence between their harmful conduct or if the interdependency is too remote. If, for instance, someone causes a car accident and the victim suffers an injury which is not fatal but dies because the surgeon is negligent, the two tortfeasors are not jointly and severally liable.[25]

19 In the context of the cases specified in the introduction to the questionnaire, if there are more sources of adventitious presence of GMOs and these sources are attached to the activities of different persons, these persons shall be held as multiple tortfeasors and they are jointly and severally liable vis-à-vis the victim while they would share liability among themselves according to the level of their fault (§ 344 subpar. (1) of the Civil Code). Whoever pays more under joint and several liability than their fault would have established has a right of recourse (regress claim) from the others who paid less (or nothing) in proportion to the level of their fault.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

20 Under the fault-based liability regime there is a reversed burden of proof regarding fault: the tortfeasor may exonerate himself by proving that he acted in line with the general standard of conduct. Fault is failure to act according to the required standard of conduct (to act as it is in the given circumstances generally expected – § 339 subpar. (1) of the Civil Code). Fault is an objective concept which reflects whether certain harm is attributable to the tortfeasor in the fault-based liability regime. Fault shall be assessed on a case by case basis. There are no settled guidelines or principles determining fault. Negligence or intention is irrelevant as the personal, subjective qualities of the tortfeasor are to be disregarded as well. The requirements that the general standard of conduct imply reflect the nature of the tortfeasor's activity and the risks involved by this activity under the given circumstances. The standard may be very high and may reach even the level of unavoidability of the harm: the general standard of conduct may be doing everything possible in order to avoid causing damage to others.

21 Clearly established statutory rules defining the required conduct for GMO agriculture would make a difference only if a regulation explicitly declares that if the tortfeasor's conduct meets the statutory rules, the tortfeasor shall not be

[25] Motivation for the Hungarian Civil Code (supra fn. 20), The motivation for § 344.

liable. In the absence of explicit statutory limitation of liability – in my opinion – such a regulation would provide only an indication of what farmers should do but would not affect their liability or the determination of the required standard of conduct.

22 The relevance of clearly established statutory rules defining the required conduct for GMO agriculture may be relevant for two basic preconditions of liability: unlawfulness and fault as well. Such regulation would *per se* neither make causing damage lawful nor the conduct of the tortfeasor as being in line with the general standard of conduct. To make damage lawful the regulation has to provide that the tortfeasor is entitled to cause damage in cases and circumstances specified in the regulation and – similarly – bringing the tortfeasor's conduct in line with the required general standard of conduct, the regulation would have to provide explicitly that compliance with the rule itself means that the tortfeasor's conduct meets the generally required standard of conduct (so the tortfeasor cannot be held as acting at fault).

23 As far as unlawfulness is concerned, the basic norm of Hungarian tort law (§ 339 subpar. (1) of the Hungarian Civil Code) on fault-based liability provides that the tortfeasor shall be liable for the damage which he caused unlawfully and allows the tortfeasor exoneration if he proves that he acted according to the generally required standard of conduct. The theoretical basis for the concept of unlawfulness is that in general, causing damage shall be deemed as unlawful unless it is otherwise explicitly provided by the law.[26] If the tortfeasor can prove that in that specific case the causing of harm is explicitly rendered lawful by the law he shall not be liable.[27] In other words, a conduct which results in damage to others is unlawful and from this follows that causing harm is always unlawful. Unlawfulness shall be presumed and can be established in the absence of an infringement of a special statutory regulation as well. According to theory that prevails today unlawfulness and fault are two prerequisites of liability to be distinguished though even in some cases it can be hard to set them apart.[28] The notion of unlawfulness in tort law is a category of private

[26] The court practice, however, has never been consistent in following the approach that a conduct which results in damage to others is unlawful and from this follows that causing harm is always unlawful. The courts very often try to find a certain legal norm which had been infringed by the tortfeasor in order to establish liability even if this would not be a necessary requirement or they hold simply that the tortfeasor's conduct was not unlawful if they think rejecting the claim would be just. The violation of a certain statutory provision may provide despite the original theoreti cal background of tort law regulation which would not make it necessary an important reference point to the courts in establishing unlawfulness and liability. The court practice in Hungary is in a state of change regarding the doctrine of unlawfulness. See BH 2005 no. 12. (Supreme Court, Legf. Bír. Pfv. III. 22.883/2001.); BH 2005. no. 17. (Pécs High Court of Justice, Pécsi Ítélőtábla Pf. III. 20.356/2004.) The courts in these decisions rejected the claims of the plaintiffs' by simply referring to the absence of unlawfulness without finding and referring to a norm which would allow causing harm explicitly as it would have been required by the general doctrine. Neither of the cases were connected to the application of an administrative law regulation.

[27] *Gy. Eörsi* (supra fn. 11) no. 221. The defences are e.g. the consent of the aggrieved person, necessity, the authorized exercise of rights etc.

[28] *Gy. Eörsi* (supra fn. 11) no. 252.

law independent from illegality established by the infringement of statutory provisions, either in private or in public regulations. From the autonomous concept of unlawfulness follows that even in the absence of an infringement of a statutory provision the tortfeasor shall be held liable and – on the other hand – the compliance of the tortfeasor's conduct with a statutory provision or administrative permission in itself does not prevent the tortfeasor from being held liable.[29] The violation of a statutory provision may play, however an important role in the qualification of the damage. If the qualification of the damage is important from the point of view of establishing the applicable regime (e.g. whether the liability is strict or a fault-based one) the violation of a specific regulation would orient the courts.

24 According to the new regulation provided by the amended Genetic Technology Act permission is required to pursue GMO crop production activity and the permission shall be given if preconditions specified in the Act are fulfilled. The fulfilment of the requirements and the permission however do not make the tortfeasor's conduct lawful. According to prevailing theory the tortfeasor cannot plea successfully by relying on the permission or that he acted in line with the statutory requirements (e.g. that he kept the buffering zone required by the law) in order to be relieved from liability. The lawfulness of the tortfeasor's conduct in public law in itself does not permit one to cause damage to others.[30] Thus, the Hungarian legal system does not allow the "regulatory permit defence" or the "regulatory compliance defence." Compliance with statutory or individual permission makes the tortfeasor's conduct lawful in public law but does not make it lawful in tort law. The permission itself or compliance with statutory or regulatory requirements does not constitute an exemption for the tortfeasor from civil liability.

25 As far as fault and regulations are concerned, the regulation itself provides only a minimum standard of conduct. The failure to comply with a regulation is an obvious failure to meet the general standard of conduct. The existence of such a regulation does not mean that there are no further implied requirements not settled in the regulation. From this follows that – except it is explicitly otherwise provided by the law – compliance with regulatory standards does not mean compliance with required general standards of conduct. Administrative law regulations may provide, however, important reference points on what the required standards of conduct in that certain case could and should be.

[29] *B. Lenkovics*, A környezetszennyezés polgári jogi szankciói in: *L. Asztalos/K. Gönczöl* (eds.), Felelősség és szankció a jogban [Liability and sanction in the law] (1980) 317 ff., 324.

[30] E.g., BH 1999. no. 449 (Supreme Court, Legf. Bír. Pfv. I. 23.084/1998. sz.); BH 2000. no. 244 (Supreme Court, Legf. Bír. Pfv. X. 21.156/1999. sz.).

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

Since there is a general clause of strict liability for especially dangerous activities in Hungarian tort law provided by § 345 of the Civil Code, strict liability for dangerous activities itself is a flexible regime. The idea of strict liability for dangerous activities rests on the high risk associated with such activities that calls for special risk allocation. As it has been presented in the introduction, a considerably wide range of activities have already been qualified as dangerous ones in court practice. There are however no well settled and formulated guidelines which really could help in predicting whether cases specified in the introduction of the questionnaire would be subsumed under this regime or not except the cases where it is explicitly provided by the Act. It is almost impossible to predict whether new cases, not yet qualified in court practice would be deemed as extremely dangerous, triggering strict liability or not. The Genetic Technology Act referred to in the introduction to this report provides (§ 27 and § 21/D subpar. (5)) that liability for producing and distributing products of genetic technology are dangerous activities that shall be covered by strict liability rules under § 345 of the Civil Code as well as the liability for incomplete segregation of GM and traditional crop production. This is a normative declaration of the dangerous character of genetic technology activity and would presumably influence the courts into the direction of extending this qualification from production and distribution to utilization as well. This would fit very well into the courts' overall tendency of extending the scope of dangerous activities and the application of strict liability according to § 345 Civil Code to cases not specified in the Act as well. 26

There are neither in theory nor in practice generally specified requirements that could be usefully generalized for cases specified in the description of this project and which would help in qualification. The general extensive tendency, the qualification provided by the Genetic Technology Act for production, distribution and incomplete segregation and risk allocation considerations (including the attempt to make the plaintiff's situation better regarding the burden of proof and making the *Beweisnotstand* easier for the victim) would presumably – albeit not necessarily – lead to the application of § 345 Civil Code and the strict liability regime for especially dangerous activities. 27

Even in a strict liability regime for especially dangerous activities there are defences for the tortfeasor which may lead to exoneration. There are two defences that shall be accepted and result in exempting the tortfeasor from liability in this regime. The tortfeasor shall not be liable if he proves that the damage has been wrongfully caused by the victim himself or if he proves that the cause of the damage fell outside the scope of the dangerous activity *and* was unavoidable. 28

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

29 Nuisance or similar neighbourhood problems are covered by specific provisions on the protection of property. The most important provision is the general clause in § 100 of the Civil Code which prohibits owners from exercising their property rights to the unnecessary disadvantage of others, especially their neighbours. In the context of tort law, however, these provisions do not make a difference since there are no specific remedies or sanctions for the violation of this requirement. In the absence of special sanctions, remedies for torts shall be applied.[31] Even if these rules are to apply to cases of the kind covered by this study general tort law regulation is to be applied.

4. Damage and remedies

(a) How is damage defined and measured?

30 The Hungarian Civil Code rests on the principle of full compensation: all unlawfully caused damage for which the tortfeasor is liable must be compensated regardless of the nature of the harm. According to § 355 subpar. (1) and (4) of the Civil Code the tortfeasor who is responsible for the damage shall be liable for restoring the damaged item to its original state, or, if this is not possible or if the aggrieved party refuses restoration on a reasonable ground, he shall indemnify the aggrieved party for pecuniary and non-pecuniary damage. On the grounds of indemnification, compensation must be made for any depreciation in value of the property belonging to the aggrieved person and any pecuniary advantage lost due to the damage as well as the indemnity of the costs, which are necessary for the attenuation or elimination of the pecuniary and non-pecuniary loss suffered by the aggrieved person. From the principle of full compensation follows that all damage must be compensated regardless of the nature of the damage (i.e. whether it was *damnum emergens* or *lucrum cessans*, or whether the harm was caused to property, to persons or it was an economic loss) or the degree of fault (provided it was imputable to the tortfeasor). There is no distinction between direct or indirect harm within the causal link; indirect cause may also be relevant. Hungarian court practice has found its limitation measures in order to optimize risk allocation in the complex concept of accountability and in causation instead of a doctrine based on pure economic loss or such a category. The concept of pure economic loss[32] is not known in Hungarian tort law. Hun-

[31] E.g. in a very recent decision, the Hungarian Supreme Court established that the landowner's claim against a cell phone company for compensation in depreciation of land value because the company built a transmission tower on the neighbouring land shall be assessed under general tort law rules. BH 2006. 184, Legf. Bír. Pfv. III. 20.852/2005. sz.

[32] The main conceptual feature of pure economic loss is that it is a loss without antecedent harm to the plaintiff's person or property, which is not a consequential loss in the same patrimony in which property has been damaged and which is not the loss of the plaintiff, who as a person has been injured. Pure economic loss is "harm not causally consequent upon an injury to the person (life, body, health, freedom or other rights to personality) or to property (tangible or

garian courts use the flexible concept of causation as a limitation measure for such compensation claims and they are inclined to cut off the causation link at losses deemed too remote. They use the concept of accountability to reduce the tortfeasor's liability to foreseeable losses or they simply solve the problem with the burden of proof regarding the causal link and the amount of the damage. The burden of proof is a very effective measure of risk allocation also regarding economic loss: the plaintiff has to prove that if the tortfeasor's conduct had not occurred, he certainly would not have suffered loss or with absolute certainty would have earned a certain profit. In most of the cases where the economic loss is a result of a complex causal link it is impossible to prove it.

"Ricochet loss"[33] was according to the illustration raised by Eörsi[34] a loss not 31
to be compensated on the ground of its too remote character but a relatively recent judgment of the Hungarian Supreme Court accepted this type of claim.[35] Another typical case of relational loss is where someone cuts off an underground cable while doing earthwork and causes a standstill in the energy supply or telecommunication network (so-called cable cases). According to Eörsi in these cases the tortfeasor shall not be liable for all the losses of those who were left without energy, telecommunication facilities etc. The limitation factors are: the general risk in life (*allgemeines Lebensrisiko*), to which most of the harms and losses in these cases belong; the abnormal (unexpected) conse-

intangible assets)." *H. Koziol*, Compensation for Pure Economic Loss from a Continental Law yer's Perspective, in: *W.H. van Boom/H. Koziol/Ch. Witting* (eds.), Pure Economic Loss (2004) 141 ff.

[33] Cases where a "physical damage is done to the property or person of one party and that loss in turn causes the impairment of the plaintiff's right." This is a three players' scene where a "direct victim sustains physical damage of some kind, while the plaintiff is a secondary victim who incurs only economic harm."

[34] *Gy. Eörsi* (supra fn. 13) 62. According to him, the employer sends his employee (a mechanic who has special skills in repairing certain machines) to a factory located in another part of the country. On his way to the railway station, a car runs down the mechanic. According to *Eörsi* the driver of the car shall be liable to the employee to compensate his lost earnings (salary etc. for the period he is unable to work) but not to the employer for the loss resulting from the stoppage of the factory because of the failure or further delay of repair. The reason of the limitation here is that the economic loss suffered by the employer is out of the normal consequences and was too unexpected for the tortfeasor.

[35] A sales representative suffered a car accident which was caused negligently by another car driver. The sales representative was on his way to conclude an already prepared contract in the name of his employer (the plaintiff) with a business partner of theirs. The concluding of the contract failed because the accident prevented the sales representative from going to the place of contract. The Supreme Court ascertained that if the sales representative had concluded the contract in the name of his employer, his employer would have had a certain income. The Court held that the unrealised net income, which the employer would have had from the performance of the contract if the contract had not been frustrated through the accident, is an economic loss of the employer. The driver who caused the accident of the sales representative has caused this economic loss. On this ground, the Court held the driver liable for the economic loss of the employer and ordered the defendant (the insurer of the driver who caused the accident) to pay the lost net income as compensation to the plaintiff. BH no. 2001/273. Legf. Bír. Pfv. VIII. 20.295/1999. sz. It is remarkable that the defendant was the liability insurer of the tortfeasor and there is a tendency in the court practice that the courts are more willing to order compensation if the risk is shifted to an insurance company.

quences; the disproportionality; and the remoteness of damage. The costs of restoring the energy supply are to be compensated, such as the economic loss of the energy supplier itself (if it is not to be deemed as a normal risk inherent to the suppliers' activity) but for the more remote losses, the doctrine of normal loss is to apply and according to that, damage that is too remote is by no means to be compensated (the more remote the loss and lower the degree of negligence, the smaller the chance of compensation).[36]

32 To the category of pure economic losses called "transferred loss" belong those cases where the harm caused to the primary victim is shifted to another person (the secondary victim). In these cases it is the contractual or statutory obligation which renders the secondary victim liable to take the loss of the primary victim on himself.[37] In Hungarian court practice and literature it is not a special tort situation. If the party is obliged to bear the loss (e.g. on the ground of insurance) of another, the right of recourse is usually statutorily (if the obligation is imposed by statute) or contractually provided to him.

33 The speciality of the type of pure economic loss caused by "closures of public markets, transportation corridors and public infrastructures" is that here the loss "arises without a previous injury to anyone's property or person" and usually public restraints are involved in these cases.[38] There are not too many precedents for these type of cases but both the theory and the practice seem to be ready for the limitation of liability. In a case from 1964, a Hungarian court dismissed the claim of a plaintiff who claimed compensation for his additional costs from the use of a longer route when a road had been closed because of a car accident that had been caused by the defendant. The court pointed out that the defendant could not forsee the possibilities of this harm.[39] According to an illustration of Eörsi if a bridge is wrecked because of the conduct of the defendant, the plaintiff shall not be compensated for the loss he suffers because of the traffic detour. The reason for the limitation in these cases is that the traffic may be detoured for very different reasons and its occurring is a normal risk which everyone has to bear as his own. Eörsi seems to share the view that in these cases the defendant shall be liable for causing the risk itself but not for the realization of it.[40]

[36] *Gy. Eörsi* (supra fn. 13) 63 and 65.

[37] *M. Bussani/V. Palmer* (eds.), Pure Economic Loss in Europe (2003) 12.

[38] *M. Bussani/V. Palmer* (supra fn. 37) 12. Van Boom categorizes these cases as "interference with resources" and also attaches the cable cases here. See *W.H. van Boom,* Pure Economic Loss: A Comparative Perspective, in: *W.H. van Boom/H. Koziol/Ch. Witting* (eds.), Pure Economic Loss (2004) 26.

[39] The decision was not a Supreme Court decision but a first instance decision, which has not been appealed by the plaintiff and as such may only be taken into account with reservation as a refer ence. *F. Petrik* (supra fn. 7) 31.

[40] *Gy. Eörsi* (supra fn. 13) 65. If the person who has to use the diversion suffers damage in an accident he cannot be compensated on the basis that he would not have been involved in an accident if he had not been forced to use the alternative route, because the link of causation is abnormal and is outside of the ordinary probability.

There are cases where the aggrieved party suffers harm as a result of reliance on data, information or professional services of the tortfeasor in a situation where the tortfeasor provides the data, information or services on the basis of a contract with another party but not with the plaintiff.[41] According to Hungarian tort law these cases seem to fall under the normal liability test without special limitations, at least as far as only a limited number of possible plaintiffs are involved. If the lawyer causes harm e.g. by composing an invalid contract he shall be liable toward his clients for breach of contract, towards other parties the lawyer shall be liable on the ground of torts.[42] On the basis of the proportionality doctrine the compensation would be limited if the person who provided false information or caused harm otherwise to third parties outside the contractual relationship acted with a low degree of negligence. Presumably this would be the case if investors and market operators would sue the accountant who provided falsely calculated and published balance sheets which the buyers relied on before they decided to buy the shares. 34

To sum up, pure economic loss is not a special type of damage (or loss) in Hungarian tort law and cases of pure economic loss are not addressed under a common heading in Hungarian tort law theory and practice. The cases known as "pure economic loss" are causation problems. One cannot say that there is a general policy for restricting or rejecting claims in pure economic loss cases, albeit in theory and literature a strong limitation is suggested and such approach is followed – but not in every respect – by the courts. 35

The court practice is consistent in that the amount of damages must be proven by the plaintiff,[43] and there is only a possibility to award so-called general damages if it is *per se* impossible to prove the amount of damages. If the plaintiff fails to prove the amount of damage (the exact loss) despite it being objectively possible, the claim will be rejected. 36

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

The question has two aspects: one regards the concept of damage, the other the problem of causation. In the context of the concept of damage, if the loss of the farmer – e.g. the radical depression of business – is proven, it is a damage that may be recognized as a compensable loss regardless of what the second- 37

[41] *M. Bussani/V. Palmer* (supra fn. 37) 13. See also *W.H. van Boom* (supra fn. 38) 19. A typical illustration here may be the facts of the English case *Hedley Byrne & Co. v. Heller & Partners* [1964] *Appeal Cases* (AC) 465 for the liability for negligent misstatements. See for a detailed analysis *B.S. Markesinis/S.F. Deakin*, Tort Law (3rd ed. 1993) 86. ff.; and for the liability for professional services toward third parties see *White and another v. Jones and others* [1993] *All England Law Reports* (Court of Appeals) 481.

[42] *Gy. Eörsi* (supra fn. 11) no. 254.

[43] BH 2003. 249 (Legf. Bír. Gf. VI. 30.036/2002. sz.) EBH2001. 544 (Legf. Bír. Gfv. II. 30. 016/2001. sz.) BH 2000. 541 (Legf. Bír. Pfv. III. 23.402/1998. sz.) Supreme Court decisions.

ary underlying reason is behind that. Neither tort law regulation nor underlying doctrines allow such distinction if damage (loss) is proven. In the context of causation there is a distinction between the two situations. If there is actual admixture, the causation is direct. If actual admixture is not proven but the reason for the business's depression is a customer's fear that its products are no longer GMO free, the causation is indirect (more remote) since the cause of the loss seems to be more the fear than the existence of GMO cultivation in the surrounding area. In the case of actual admixture the courts would be much more ready to award compensation than in cases of customers' fear that products are no longer GMO free.

(c) Where does your legal system draw the line between compensable and non compensable losses? Are, for example, losses of farmers in a region covered where the crops of only one of them have been contaminated, but where consumers fear that the entire region is affected?

38 I think that it is not possible to draw such a line between compensable and non-compensable losses in an abstract sense. In principle, all damage shall be compensated that is in causal link with the tortfeasor's wrongful conduct except where liability is limited on grounds of a risk allocation policy. What may make a difference here again is that the loss of the farmer whose crops have been contaminated is a direct one, while the damage of others who suffer loss because of customers' fear is indirect. In cases of indirect causation courts may establish that causation is too remote and may limit liability even if in principle there is no distinction between direct and indirect causation. The more indirect causation is and the more vague the boundaries of risk and incalculable the losses are the more the courts would be willing to limit liability on grounds of too remote causation.

(d) What are the criteria for determining the amount of compensation in general?

39 Since Hungarian tort law follows the principle of full compensation, the actual net damage and lost profits shall be calculated. On the other hand, the law does not allow overcompensation: to award compensation above the loss incurred would result in the unjustified enrichment of the victim that shall be avoided. If the products become unmarketable, the lost profit shall be compensated. If there is depreciation in value but the products are marketable, only depreciation shall be compensated. If there are costs for breach of contract (e.g. a penalty has been paid) it must be compensated as well.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

40 There is no financial limit to liability in Hungarian tort law (neither in general nor for the specific cases covered by this project). There is, however a possibility to mitigate damages once liability is established: according to § 339 subpar. (2) of the Hungarian Civil Code the court may mitigate the tortfeasor's obliga-

tion to pay damages on equitable grounds. This may be done on a discretionary basis. Since this possibility is not actually applied in court practice there are no guidelines or principles which could be formulated to give a picture on court practice regarding this provision. Since equity is not accepted as a general clause (nor as a general principle) in Hungarian private law, it is very hard to give a correct possible content of this rule.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

Such a duty is only imposed under specific regulations and for activities specified in regulations such as compulsory third-party insurance of motor vehicle operators or an obligation to provide security for those who pursue an activity that may cause environmental damage under environmental protection legislation. For genetic technology activity there is no such compulsory insurance. 41

(g) Which procedures apply to obtain redress in such cases?

There is no specific procedure to obtain redress in areas where such a system is working. Redress is covered by insurance law regulation or under general rules of private law. 42

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

There are no general compensation schemes that may provide useful information for this project. 43

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

There is no specific regulation covering these costs in Hungary yet. There is general regulation for fees to be paid for official food control (Ministerial Decree no. 89/2005 (X.11.) FVM-EüM-ICsSzEM-PM). The whole regime in Hungary for the regulation of producing and distributing GMO products is relatively new; the detailed procedure for permitting and monitoring such activities has been coming into force over the last two years. 44

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

I do not know of any industry-based rule covering this. The general rule is that if someone wants to get a qualification for a product or to get permission 45

for putting a product into circulation and it is necessary to prove that it does not contain any GMOs, the costs must be borne by him. There are no state or private funds which cover such costs.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

46 I do not know of any specific regime for providing rights of recovery of costs if the tests prove actual GMO presence.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

47 There are no special jurisdictional or conflict of laws rules in force (neither do I know whether there are any planned as yet) which apply to harm of the kind described in the introduction to this questionnaire. I think that such a regulation would come with a specific national regulation.

2. General rules of jurisdiction and choice of law

48 The general rules of private international law and the law applicable to torts would be applied. According to § 32 of Law Decree No. 13 of 1979 on Private International Law for non-contractual liability, the law according to the place and time of the tortfeasor's conduct or omission shall be applied. If it is more advantageous to the victim, the law of the state where the harm occurred shall be applied. If the tortfeasor and the victim are resident in the same state, the law of this state is to be applied. If the parties ask for the applicable law to be disregarded, Hungarian law shall be applied (§ 9 of the Law Decree).

Economic Loss Caused by GMOs in Ireland

Raymond Friel

I. Introduction

There is no specific liability regimen with respect to GMOs in Ireland, nor is there any pending legislation to create such a unique system of liability. Whilst legislation exists to provide for the extensive regulation of GMO production in accordance with European provisions,[1] the basis of liability for harms arising from GMO production is primarily that of the law of tort as found in the common law. In brief, liability for the escape of GMOs that might cause harm to non-GMO production can be based on actions in nuisance, negligence or the doctrine of *Rylands v Fletcher*, none of which provides an absolute or certain remedy. In fact it is likely that the common law provides no satisfactory remedy for such events, both due to procedural and substantive limitations within the legal process. Procedurally, it will be difficult to establish a sufficient causal nexus between any potential harm arising from the escape of the GMO. Substantively, none of the legal actions outlined really provide comprehensive coverage to a plaintiff, either because contamination of neighbouring crops with GMOs does not constitute a breach of the duty between plaintiff or defendant or even where it does constitute a breach, the harm suffered is most likely of a type which is not compensatable. 1

II. General liability

1. Statutory regulation

Before outlining in detail the possible common law actions that might be available for the release of GMOs into the environment, it is important to make the point that although the existence of the regulatory framework for GMOs does not provide a framework for liability, it is also clear that where these regulations have not been complied with, both the government agency[2] and the originator of the GMO may be liable for breach of statutory duty. This 2

[1] *Statutory Instrument* (SI) No 73/2001 Genetically Modified Organisms (Contained Use) Regulations 2001.

[2] Under the SI, the Environmental Protection Agency is the designated government agency with responsibility.

potential action does not provide a framework for liability in its own right. However, it can be used to found liability as part of the general system of tort liability. For breach of statutory duty to be actionable where the statutory provision itself does not make breach actionable, then "where an obligation is created but no mode of enforcing its performance is ordained, the common law may, in general, find a mode suited to the particular nature of the case."[3] In *M'Daid v Milford Rural District*[4] the Irish courts have held in order to be actionable the plaintiff must be (i) a member of the class that the statutory provision was designed to protect and (ii) have suffered harm over and above that incurred by other members of that class.[5] This will require a judicial interpretation of the class being protected by the legislation. If the court views that the GMO statutory provisions are designed to protect the general public and not specifically the farming community, no liability will attach for a breach of these provisions.[6] In truth, given the explanatory memorandum to the statutory instrument, combined with the European rationale for the legislation, it seems clear that the intent is to protect the general public and is not confined to specific classes therein. Given that, it is submitted that at this point in time, an action for breach of statutory duty in this area is not sustainable.[7] In that event only the standard common law actions are pertinent to the problem at hand. It is these which will be dealt with in detail.

2. Causation

(a) Causal link

3 The establishment of a causal link, whether the action is based on nuisance, the rule in *Rylands v Fletcher* or negligence, remains fundamentally the same. The plaintiff must establish that the acts of the defendant caused the harm arising to the plaintiff. This requires that the evidence show that the harm was caused as a matter of fact by the defendant. The standard test is the so-called 'but for' test: would the harm not have occurred 'but for' the actions of the defendant. In *Barnett v Chelsea and Kensington Hospital Management Committee*[8] despite the proven negligence of the hospital, the case was dismissed when it was revealed that the plaintiff would have died even if the hospital had not been

[3] *Doe d. Bishop of Rochester v Bridges* (1831) 1 B&Ad 847, 849; [1824] *All England Law Reports* (All ER) 167, 170.

[4] [1919] 2 *The Irish Reports* (IR) 1.

[5] The modern English formulation uses these criteria as alternatives, whereas the Irish judgment appears to use them as cumulative. The better view is that the criteria are cumulative in an Irish setting, absent any Irish court pronouncement on more recent English jurisprudence, but cf. *E. Quill*, Torts in Ireland (2nd ed. 2004) 132 140.

[6] *Daly v Greybridge Co-operative Creamery Ltd* [1964] IR 497; see also *Atkinson v Newcastle & Gateshead Waterworks Co* (1877) 2 *Law Reports, Exchequer Division* (Ex D) 441.

[7] Even if that is not the case the plaintiff in such a case will have difficulty in establishing the second criteria, namely that he has suffered harm over and above that suffered by others in the class. The plaintiff essentially must establish that the harm he or she has suffered is 'different' from others in the class, a difficult burden on likely GMO facts.

[8] [1969] 1 *Law Reports, Queen's Bench* (QB) 428.

negligent. The facts had failed the 'but for' test with respect to the hospital's negligence. Similarly, in *Kenny v O'Rourke*[9] although the plaintiff had fallen from a defective ladder, the defendant manufacturer was held not liable where the reason for the fall was that the plaintiff had leaned over too far from the ladder.

Where there are a number of potential causes which gave rise to the harm and the plaintiff is unable to establish with certainty which of them caused the harm, then the plaintiff may rely upon the decision of *Fairchild v Glenhaven Funeral Services*.[10] In this case the House of Lords held that where the sources of risk are of the same nature or type each could be held to be a cause of the harm, essentially creating a rule of law that a material increase in risk of harm gives rise to legal causation although it is impossible to prove factual causation. Although there is no Irish case directly on point,[11] such a rule would prove immensely beneficial in cases involving GMOs since it may be impossible to prove factual causation between different sources of GMO transmission. The rule in *Fairchild* would enable a plaintiff to establish cause simply by showing that the defendant's actions materially increased the risk of harm, without establishing that the defendant's acts were the 'but for' cause of the event. Whether or not *Fairchild*, with its far reaching implications across the broad spectrum of tort actions, will be followed in Ireland remains to be seen. 4

It should be noted that while proving factual causation is essential, it is only the first stage in establishing legal liability. Liability may be denied if the factual cause is considered too remote. Remoteness essentially covers legal causation. Although the defendant may be the factual cause of the harm, not every such cause will give rise to liability. At some point the gap between the cause and the harm is such that the law will not impose liability. The application of legal causation is complex since it involves issues of policy, justice and fair play. It also requires a very concise analysis of what harm the plaintiff is claiming has occurred. 5

The traditional formulation for remoteness was the so-called direct consequence rule outlined in *Re Polemis*.[12] Under this formulation the test was whether or not a reasonable person would have foreseen any damage to the plaintiff. If so, then the defendant would be liable for all damages arising as a direct consequence of his or her acts, even if a reasonable person would not have foreseen such consequences. Reasonableness therefore goes towards culpability not consequences or compensation. This formulation was criticized and no longer appears to represent good law. 6

[9] [1972] IR 339.
[10] [2003] 1 *Law Reports, Appeal Cases* (AC) 32.
[11] Although see an earlier case of *Best v Wellcome Foundation* [1993] 3 IR 421 which seems to cast doubt on any such rule of law, preferring instead to rely upon the traditional principles of causation; see generally *E. Quill* (supra fn. 5).
[12] [1921] 3 *Law Reports, King's Bench* (KB) 560.

7 In *The Wagon Mound*[13] the court held that the better test was that the defendant would be liable for all damage that could have been reasonably foreseen as arising from the defendant's actions. This places reasonableness at the heart not only of culpability but also consequences and compensation. It appears that this approach is to apply not merely in negligence actions but also in nuisance.

8 There are a number of points that arise from the rule in *The Wagon Mound*. First, it is not necessary that the exact extent or form of the damages be reasonably foreseen. All that is required is that the harm foreseen falls within the general range of that which occurred. Second, the defendant will be liable even where the harm caused is of a significant and unusually high pecuniary value and the defendant cannot claim that such damage could not have been reasonably foreseen. Third, the test is modified by the egg shell skull rule. Under this rule, the defendant must take his or her victim as they find them and the defendant cannot argue that the plaintiff's condition was unforeseeable. Finally, *novus actus interveniens* can operate to break the chain. *Novus actus* occurs where there is an intervening act either from a natural event or from the act of a third party or indeed the plaintiff, which is of a sufficient nature to end the liability of the defendant.

9 Where a GMO escapes into the environment the question will be whether or not such an escape gives rise to any reasonably foreseeable harm to its neighbours. If it does, it will not matter whether or not the harm suffered may be greater because the plaintiff is, say, an organic farmer. But as a corollary, it is insufficient to establish that the escape of the GMO presents reasonably foreseeable harm to organic farmers only. The true question is whether the escape itself can give rise to foreseeable harm. In essence however, this remains an issue of policy. Doubtless, the existence of a GMO farm in the midst of an area of organic farming will give rise to reasonably foreseeable harm from an escape but where the GMO farm is located in a traditional farming area, then the escape of GMOs will not necessarily give rise to foreseeable harm. Moreover, mandatory requirements to label general produce with the amount of GMOs contained may further alter this picture and provide reasonably foreseeable harm for the escape of GMOs which contaminate traditional farming produce.

(b) Burden of proof

10 The burden of proof in causation lies on the plaintiff as the assertor of the wrongdoing.[14] The plaintiff must establish factual cause on the balance of probabilities, that is to say that the plaintiff's assertion is more likely to be true than not. Where there is an alternative possibility that can equally explain the cause of the events, the court has held in *O'Reilly Brothers (Quarries) Ltd v*

[13] [1961] AC 388.
[14] *Hanrahan v Merck, Sharpe and Dohme* [1988] *Irish Law Reports Monthly* (ILRM) 629, 634 5.

Irish Industrial Explosives Ltd[15] that the plaintiff has not discharged his or her burden of proof. In that case, the court was of the opinion that the cause of the harm could equally have arisen from the defendant's explosives or from abnormalities in the rock into which the explosives were being inserted.

11 In rare circumstances, the burden of proof can switch to the defendant; in particular the doctrine of *res ipsa loquitur* can be used in negligence actions to require the defendant to disprove his or her negligence. Simply put, the doctrine of *res ipsa loquitur* permits the court to draw an inference of negligence against the defendant without requiring the plaintiff to prove all the necessary details. The doctrine requires that (i) the thing causing the damage is under the control of the defendant and (ii) that the events complained of would not have occurred in the ordinary course of things without negligence.

12 In *Lindsay v Mid Western Health Board*[16] a child went into hospital to have her appendix removed and never recovered consciousness. In adopting the *res ipsa* principle, the court seemed to suggest that the principle would not merely remove the burden of proof with respect to negligence but also the requirement to establish any causal link. If that is the case it represents a significant extension in Irish law to the traditional view of *res ipsa*. Although the subsequent case of *Quinn v South Eastern Health Board*[17] appears to confirm this extension to cover not merely negligence but cause, Murphy J in *Cosgrove v Ryan*[18] specifically limited the application to issues of negligence. In the absence of a definitive view from the Supreme Court, the issue remains clouded. From the perspective of GMO liability, if the doctrine were to remove the need to establish causal factors, then the application of this doctrine would immensely strengthen the hands of the plaintiff.

13 For *res ipsa* to apply, the plaintiff must show that the defendant is in control of the events. Thus in *Easson v LNE Rly*[19] the court held that the corridors of an express train from London to Edinburgh could not be said to have been under the control of the railway operator and the accidental opening of a door could have been caused by the interference of other passengers as much as through the actions of the railway company. Even if control by the defendant is proven, it requires that the acts complained of would, in a common sense way, not have happened other than through the negligence of the defendant. Thus two trains belonging to the same railway company will not normally collide without negligence on the part of the company.[20] From the perspective of GMOs a defendant may argue that once planted, a GMO is no longer sufficiently under the control of the defendant, inasmuch as that its escape may arise from natural acts over which the defendant is helpless. If the argument succeeds, and there

[15] Unreported SC, 27 February 1995.
[16] [1993] 2 IR 147.
[17] Unreported HC, 22 March 2002.
[18] [2003] 1 ILRM 544.
[19] [1944] 2 KB 421.
[20] *Skinner v LG&SC Rly* (1850) 5 *Exchequer Reports* (Ex) 787.

is merit to it, then the doctrine cannot apply and the burden of proof will remain with the plaintiff.

14 It is important to understand that the effect of the doctrine is simply to create an inference of negligence such that, in the absence of rebuttal by the defendant, the court is entitled to make a finding of negligence without any further evidence. A number of points need to be noted. First, the doctrine is permissive, not mandatory. It is perfectly possible for a court to hold that notwithstanding the doctrine, the plaintiff has failed to satisfy the burden of proof despite the inability of the defendant to rebut the inference of negligence.[21] Although this is unlikely, it is possible. Second, it is open to the defendant to present evidence that the cause of the events arose other than through their negligence: for example, by the deliberate act of a third party. However, the burden facing the defendant is considerable once an inference of negligence has emerged. In *Henderson v Henry E Jenkins & Sons*[22] the defendant proved that a brake hose pipe had been regularly visually inspected and maintained. It had failed due to a flaw that was only discoverable if the hose pipe had been removed and inspected internally. Neither the manufacturers nor the relevant state agencies required such removal. The court held that the defendant had not rebutted the inference of negligence since it had not produced additional evidence to show that nothing abnormal had occurred in the life of the vehicle that would have led to the extensive internal corrosion of the hose pipe.

(c) Multiple causes

15 Where it is suggested that there is more than one cause to the harm, much hinges upon whether the causes of harm arise from tortious acts or other acts, such as the vicissitudes of life. In *Baker v Willoughby*,[23] the plaintiff suffered injury to his leg as a result of the first defendant's negligence. Before the trial however, the plaintiff was a victim of an armed robbery during which he lost the injured leg. At trial the first defendant sought to have the quantum of damages limited to the period between the injury arising to the leg and the leg being amputated. The House of Lords rejected this argument holding that the removal of the leg arose from two concurrent causes: the injury by the defendants and the wound by the armed robbers. However, the ruling in this case has been undercut substantially by the subsequent case of *Jobling v Associated Dairies*.[24] In that case the plaintiff suffered an injury to his back due to the negligence of the defendant. However, again before the case came to trial, the plaintiff was diagnosed as suffering from a condition known as myelopathy. The court held that this was a vicissitude of life such as to supervene the defendant's negligence. Even if the plaintiff had not suffered as a result of the defendant's negligence he would still have contracted

[21] *Ng v Lee* [1988] *Road Traffic Reports* (RTR) 298 holding by the Privy Council that the doctrine does not shift the burden of proof but simply provides for an inference of negligence.
[22] [1970] AC 282.
[23] [1970] AC 467.
[24] [1982] AC 794.

the myelopathy. To hold the defendant "in this situation, liable to pay damages for a notional continuing loss of earnings attributable to the tortious injury, [would be] to put the plaintiff in a better position than he would have been if he had never suffered the tortious injury."[25]

16 There has been some debate over whether or not the two cases can be distinguished on the basis that *Baker* concerns successive tort actions which can be treated as concurrent causes whereas *Jobling* concerns a tort action followed by a non-tortious act, where the subsequent event operates to break the causal link. In *L v Minister for Health and Children*[26] prior to 1983 the applicant was infected with Hepatitis C during treatment for a moderate case of Haemophilia A. In 1997 the applicant was involved in a serious road crash requiring the amputation of a leg. The court held that a tort should not be regarded in the same manner as a vicissitude of life.

17 For GMO purposes the principle difficulty will be establishing the source of the GMO contamination since, while the origin of the harm will almost certainly come from within all GMO producers, establishing which particular producer is the causal source of the harm will be exceptionally difficult if not impossible. Mere proximity with the plaintiff can hardly be said to be determinative given the possible methods of transmission. However the Civil Liability Act 1961, s 11(3) provides that "*where two or more persons are at fault and one or more of them is or are responsible for damage while the other or others is or are free from causal responsibility but it is not possible to establish which is the case, such two or more persons shall be deemed to be concurrent wrongdoers in respect of the damage.*" Essentially this means a plaintiff may join all GMO producers, thus rendering them all liable despite the inability to prove cause against all of them. Whether such an approach is sustainable remains untested and s 11(3) has had little practical application in Irish courts. However, the potential is there.

18 Where a defendant is found to be the cause, both in fact and at law, for some of the harm to the plaintiff, then he or she will be jointly and severally liable for the full damages owed to the plaintiff, including those caused by his or her co-defendants.

3. Standard of liability

19 There are a number of possible grounds for liability attaching to the accidental escape of a GMO into non-GMO production:

(a) Nuisance
(b) Rylands v Fletcher
(c) Negligence

Each cause of action will be dealt with in more specific detail.

[25] [1982] AC 794, 820.
[26] [2001] 1 IR 745.

(a) Nuisance

20 Nuisance is divided into two categories, public and private nuisance.

21 Public nuisance concerns actions that affect the lives of a class of people, whereas private nuisance covers those acts that unlawfully interfere with the use or enjoyment of land, or some right over or in connection with it.

22 Although generally, public nuisance is a criminal action, the Attorney-General may at his absolute discretion, following information received from a member of the public, seek a private injunction against the defendant, in what is known as a relator action.

23 Moreover, in public nuisance, a plaintiff may sue in tort provided that they can establish particular damage over and above that which has been suffered by the public at large. The distinction is best illustrated in the case of *Tate & Lyle Industries v GLC*[27] where silting of a river bed, which was caused by the defendant's actions, resulted in the plaintiff's large vessels being unable to access a jetty until the riverbed was dredged. The plaintiff's action in private nuisance was dismissed because they had no private right in the river bed. However, their action in public nuisance succeeded since there was a public right to safe navigation of the river and they had suffered more than the ordinary public.

24 There are therefore significant overlaps between an action in private nuisance and one in public nuisance giving rise to particular damage to the plaintiff. Moreover it is often the case that the same set of facts may give rise to a liability in both public and private nuisance actions. However, the key element is that a public nuisance does not require the plaintiff to have any interest in the land whereas, with exceptions, the plaintiff must establish an interest in the land in private nuisance actions.

25 It is not appropriate to talk about liability in nuisance as being either strict, absolute or fault based, although its closest approximation is that of strict liability. The basis for liability in nuisance is whether the conduct of the defendant has been reasonable or not. Living in an organized group such as modern society requires some degree of compromise and so it is not every act of the defendant that interferes with the rights of the plaintiff that will give rise to liability. The test is first, whether the interference is excessive by any standards and second, if the interference is not so excessive, whether the defendant has taken reasonable steps to reduce as far as possible the level of interference with the plaintiff's rights. If the interference is excessive by any standards, then the fact that the defendant has taken all reasonable care provides no defence. On the other hand, whether the defendant has taken sufficient steps to reduce the interference is based on what is reasonable in all the circumstances. Although there is no universal formula that will dictate whether the

[27] [1983] 2 AC 509.

steps taken have been reasonable, there are a number of criteria through which it can be analysed:

(i) Nature of the locality

26 In *Sturges v Bridgman*[28], the court held that "*What would be a nuisance in Belgrave Square would not necessarily be so in Bermondsey.*"[29] This is not to say that the nature of the locality is immutable. Thus for example, in *Gilling ham Borough Council v Medway (Chatham) Dock Co. Ltd*[30] the court held that planning permission for the establishment of a commercial dock which was to operate on a round the clock basis was sufficient to change the nature of the locality and thereby dismissed the claim for public nuisance arising from the heavy goods vehicles that caused serious disturbance to a nearby residential neighbourhood. Although the planning permission was not equivalent to statutory authority it was sufficient to alter the nature of the locality and the nuisance had to be adjudicated in that light.

27 In *O'Kane v Campbell*[31] the court held in favour of the plaintiff for nuisance arising from a 24 hour shop located at the intersection of a busy thoroughfare and a quiet residential street. It appears that the court was swayed by the spill over from the thoroughfare to the residential street, which was caused exclusively by the defendant's operation.

28 As was observed earlier with respect to remoteness of damage in the causal section above, the introduction of GMO production in an area dominated by organic farming will clearly provide a locality issue. On the other hand, the introduction of GMO production into a locality where both traditional and organic farming takes place will create a completely different locality issue. Moreover there is an argument that once GMO production has been established within the jurisdiction, this itself, given the potential transmission possibilities, creates the entire jurisdiction as a single locality.

(ii) Utility of the defendant's conduct

29 Although there are limits to this, it is a matter of common sense that the lower the utility of the defendant's conduct, the more likely that an action in nuisance will succeed. Thus, the rattle of an early morning delivery of milk by the milkman is of a qualitatively different nature than the same amount of noise made by drunken neighbours. Courts are nonetheless generally slow to sanction such interference based on the utility of the defendant's conduct alone since it cannot be right that an individual should carry the burden of the nuisance for the benefit

[28] (1879) 11 *Law Reports, Chancery Division* (Ch D) 852.
[29] *Ibid*, at 865.
[30] [1993] QB 343.
[31] [1985] IR 115.

of society in general. In one extreme case, *Bellew v Irish Cement Co*[32] the Irish court ordered the closure for three months of the only cement factory in Ireland despite a chronic need for cement for domestic building. For GMO production, questions of utility encapsulate issues of policy in a way not previously found in nuisance actions. Is GMO production useful, or is its usefulness outweighed by the potential risks? To date the courts have not had to decide upon this.

(iii) Abnormal sensitivity

30 Generally speaking, no account is taken for the abnormal sensitivity of the plaintiff. Thus in *Robinson v Kilvert*[33] the court dismissed a claim of nuisance by stating that "a man who carries on an exceptionally delicate trade cannot complain because it is injured by his neighbour doing something lawful on his property …" However, liability may arise if the defendant fails to take reasonable and practical precautions to avoid the damage without appreciable prejudice to his own interest.[34] Where nuisance is established, damages will extend to delicate and sensitive operations.[35]

31 It is probably apposite to note in a context of liability for GMOs, that there is no liability in nuisance for so-called historic pollution, that is where the act complained of was thought to be harmless but which subsequent investigation has found to be otherwise. In *Cambridge Water*[36] the court dismissed the case against the defendants for contaminating the ground water since at the time, there was no scientific knowledge that the contaminant, PCE, was not readily soluble in water, after all it readily evaporated harmlessly into the air. Note also that where the danger has been created innocently by the defendant, he or she will not be liable for any subsequent harm where the danger remains on the defendant's land. Thus in the *Cambridge Water* case there can be no liability for the PCE in the groundwater, since this was now a state of affairs that had passed beyond the control of the defendants.

32 There are a number of specific defences to an action for nuisance. Where the nuisance arises by an Act of God, such as severe weather, then this is likely a defence.[37] However, to qualify as an Act of God, the event claimed of must be of an exceptional and unprecedented nature.[38] Consent as distinct from tolerance of a nuisance is also a defence.

33 Further, the defendant may try to claim that the nuisance arises from matters outside of his or her control, although the experience has been that the courts

[32] [1984] IR 61.
[33] (1889) 41 Ch D 88.
[34] *Gandel v Mason* [1953] 3 *Dominion Law Reports* (DLR) 65.
[35] *McKinnon Industries v Walker* [1951] 3 DLR 577.
[36] *Cambridge Water Co v Eastern Counties Leather plc* [1994] 2 *Weekly Law Reports* (WLR) 53.
[37] *Transco v Stockport MBC* [2004] 1 All ER 589.
[38] *Greenock Corporation v Caledonian Rly* [1917] AC 556.

have been reluctant to provide a generous application to this defence. Thus in *Goldfarb v Williams & Co*[39] the court held a landlord liable in nuisance where the second floor of the premises had been rented to a nightclub whose noise caused harm to other tenants. The court stated that the nuisance arose as an inevitable consequence of using the premises for which it had been let. Likewise in *O'Kane v Campbell*[40] the court held the defendant shopkeeper liable for the nuisance caused by his customers. Thus it seems that in an action for GMO liability, it is no defence that the defendant landowner did not originate the nuisance (e.g. the land was leased to another) provided that the escape of the GMO and resultant harm is an inevitable consequence of the use to which the land has been put.[41]

From the perspective of GMOs, in *Allen v Gulf Oil Refining Ltd*[42] the court confirmed a defence of statutory authority. In essence, this defence operates where the defendant can establish that the nuisance arises as a natural consequence of the authorised activity.[43] However the defence is not absolute: it will only apply where the defendant can establish that the nuisance could not be avoided by the exercise of all reasonable care. However, in *Marcic v Thames Water Authority*[44] the court held that where a statutory obligation was placed on the defendant then the law on nuisance could not impose obligations inconsistent with that statutory obligation. Although the case can be read *sui generis*, or more likely confined to those situations where the defendant is under a positive statutory obligation to undertake certain activities, some of the judgments seem to go beyond this. In particular, Lord Nicholls indicated that once a parliamentary scheme had been introduced then parliament had undertaken the necessary balancing of competing interests such as to render an action in nuisance inappropriate. 34

(b) Rylands v Fletcher

Nuisance is closely related to a similar doctrine known as *Rylands v Fletcher*. In fact one view is that nuisance relates to an ongoing state of affairs whereas the rule in *Rylands* operates for a single act.[45] Whether or not this is a fully accurate description, it is true to say that *Rylands* actions almost always concern single events. It is particularly appropriate where the harm is not foreseeable and this is much more likely when dealing with a single event than when dealing with an ongoing state of affairs. 35

In the case of *Rylands v Fletcher*[46] the defendant was constructing a water reservoir for his mill. During the course of excavations, the defendant became 36

[39] [1945] IR 433.
[40] [1985] IR 115.
[41] Note that this is different from the issue of control referred to in the doctrine of *res ipsa loquitur* discussed above in the causation section.
[42] [1981] AC 1001.
[43] *Manchester Corporation v Farnworth* [1930] AC 171.
[44] [2003] 3 WLR 1603.
[45] *A-G v PYA Quarries Ltd* [1957] 2 QB 169.
[46] [1868] *Law Reports* (LR) 3 HL 330.

aware of mine shafts that were blocked with earth. Unbeknownst to the defendant, these mine shafts linked up with the mine shafts of the plaintiff, his adjoining neighbour. When the reservoir was filled with water, the pressure blew the earth free and flooded the plaintiff's mines. As an action in nuisance, the plaintiff could not succeed. The harm, both in terms of culpability and consequence, was not foreseeable. Nonetheless, the court held for the plaintiff rendering the defendant liable. The basis for liability was a distinct action from nuisance and, as the facts indicate, was based on strict liability. Essentially, the doctrine states that any one who "for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and if he does not do so, is prima facie answerable for all damage which is the natural consequence of its escape."[47] Over time, the doctrine has been confined to the collection of things that constitute a non-natural use of the land and does not cover those things which would naturally be collected on land. Thus for example in *Rickards v Lothian*[48] the court held that ordinary domestic water supply was not a non-natural use of land, whereas in *Rylands* itself, the creation of a water reservoir was held to constitute a non-natural use. In the Irish case of *Victor Weston (Eire) Ltd v Kenny*,[49] the plaintiff occupied a floor of the building owned by the defendant. The defendant had retained the floor above the plaintiff. The plaintiff's floor was flooded from an escape of water from the ordinary water supply to the floor above the plaintiff which was under the control of the defendant. The court held that the defendant was not liable in these circumstances. Although the case could have been decided by following the ruling in *Rickards*, the court instead based its judgment on the fact that the plaintiff had implicitly consented to the bringing of the water supply into the building and the defendant had not been negligent in its escape.

37 The status of the doctrine has been in dispute. Although the courts have held that the doctrine emerged as the application of a general rule of strict liability in nuisance actions involving an isolated incident,[50] there is still general agreement that it now stands as an independent cause of action, alongside nuisance.[51] However, the number of successful claims under *Rylands* has been very small since its inception.

38 The major difficulty in establishing an action under *Rylands* lies in proving non-natural use. In *Transco v Stockport MBC*, Lord Bingham held that a plaintiff who can establish that the defendant has brought or kept "*on his land an exceptionally dangerous or mischievous thing in extraordinary or unusual cir cumstances is … entitled to recover compensation … without the need to prove negligence*."[52]

[47] Taken from the Court of Exchequer decision, reported at (1866) LR 1 Ex 265, 279 280.
[48] LR 1 Ex 265.
[49] [1954] IR 191.
[50] *Cambridge Water Co v Eastern Counties Leather plc* [1994] 2 WLR 53.
[51] *Transco v Stockport MBC* [2004] 1 All ER 589.
[52] [2004] 1 All ER 589 at 597.

Whether GMO production constitutes an 'exceptionally dangerous or mischievous thing' is open to debate, and in fact is at the core of the argument on GMO production. Courts may be slow to resolve this issue since it straddles the line between law and policy. In such a contentious policy area, Irish courts are more likely to avoid a direct application of the doctrine. One argument that may be more viable is where the introduction of GMO production is unique within a given area. In that manner, its uniqueness, particularly in an area where organic farming is prevalent, may constitute an exceptionally dangerous or mischievous thing. As GMO production becomes more common, it is less likely that this will be the case. 39

(i) Defences

Although liability in *Rylands* is termed strict, there are a number of defences that might arise. First, statutory authority may render the defendant immune from liability under *Rylands* unless the statute expressly states otherwise. This is wider than the defence under nuisance, since it would cover not merely situations where there is a statutory obligation on the defendant but would extend to include those circumstances where the activity is licensed either generally or specifically. Provided the defendant operates within the ambit of the authority, then liability will be confined to that given under the statutory authority, provided there is no negligence. 40

Acts of God or other third parties will also operate to exclude liability under *Rylands*. In *Carstairs v Taylor*[53] the court held that the doctrine would not apply where the escape occurred due to a rat gnawing a hole in a wooden box. However, the acts of the third party must be unforeseeable. If the act of the stranger could reasonably have been foreseen, the defendant will still be liable.[54] 41

In *Nichols v Marsland*[55] an exceptionally heavy rainstorm was determined to be an Act of God which avoided liability in *Rylands*. 42

Neither Act of God, nor third party intervention, at least where such third party is an act of nature, is likely to provide any comfort for a defendant GMO producer. 43

(c) Negligence

An action for negligence requires that the plaintiff establish a duty of care exists between the plaintiff (either personally or one which applies to a class of persons of whom the plaintiff is one), that the defendant has breached the standard of care in the relationship and that this breach has given rise to a com- 44

[53] (1871) LR 6 Ex 217.
[54] *Northwestern Utilities v London Guarantee and Accident Co Ltd.* [1936] AC 108.
[55] (1876) 2 Ex D 1.

pensatable harm. Each of these elements will be discussed in further detail in the context of GMO liability.

45 Establishing a duty of care between the plaintiff and defendant is based on the classic formulation in *Donoghue v Stevenson*.[56] The judgment of Lord Atkin states that a duty of care arises when "persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called into question."[57] Although the elaboration of this principle has proved somewhat problematic, it is clear that establishing a duty of care requires foreseeability of harm and proximity of relationship combined with policy considerations. Negligence actions, although treated as a homogenous group, therefore, tend to arise *sui generis* on their particular facts. Thus while there is sufficient precedent to hold that a lawyer owes a duty of care to a client, the existence of a duty of care in novel situations requires argument by analogy.

46 The closest analogy with respect to GMO liability arises from an Australian case, *Perre v Apand Pty Ltd*[58] where the defendant farmer introduced bacterial wilt onto the farm of the plaintiff. The court held that there was a duty of care owed by the defendant to those potato farmers within a 20km radius of the defendant's property. The duty was not easy to establish, and the court held that the duty could not be owed to the entire world. Instead, it limited the duty to a class of persons who were exposed to the direct consequences of the acts of the defendant: namely, those farmers who had previously exported their potato harvest to Western Australia but were now unable to do so because Western Australia forbade the importation of potatoes from farms which were within 20km of the land infected by bacterial wilt. One of the primary difficulties facing a plaintiff in a negligence action will be to establish the limits of the defendant's duty of care. In *Apand*, the issues of foreseeability, proximity and policy result in a highly technical drawing of the duty. One should note that the duty did not extend to all land within a 20km radius, only that land on which potatoes were grown. In addition, the duty was further limited to the potatoes which were grown for export to a specific region.

47 Of course, even if the plaintiff can establish a duty of care, there is no liability unless he or she can also establish that the duty of care has been breached through the negligence of the defendant.

48 The defendant is not expected to guard against every conceivable type of risk but instead is required to meet certain minimum standards, normally based on the standard practice recognised within the industry. Thus a GMO farmer will be held to account to a standard common to similar GMO farmers. Compliance

[56] [1932] AC 562 580 (HL).
[57] *Ibid*, at 580.
[58] [1999] *High Court of Australia* (HCA) 36, 165 *Australian Law Reports* (ALR) 606.

with industry standards and statutory provisions will all help rebut an argument that the defendant has breached the duty of care, but this evidence is not determinative. Thus even if the defendant has complied with legislative provisions, he or she may still be found to be in breach of the duty of care to the plaintiff.[59] In *Hamilton v Papakura DC*[60] the defendant's weedspray had contaminated the town water supply, which had then poisoned the plaintiff's tomatoes. In dismissing the negligence claim, the New Zealand Court of Appeal held that there were no grounds upon which the damage that occurred could have been foreseeable. Essentially, although the plaintiff might be able to establish a duty of care, he was unable to establish that the duty had been breached since the harm was not within reasonable contemplation.

Finally, the plaintiff must establish that he or she has suffered harm. This is not as clear as might be imagined. Although actions in negligence readily recognise physical and psychological harm, courts have been slow to recognise pure economic loss. It should be noted that if there is any physical harm, then consequential economic loss is recoverable. However, in the absence of any physical harm, pure economic loss such as might arise where an organic farmer cannot label his produce as organic because of GMO contamination is probably not compensatable. This will be discussed in more detail in the remedy section. 49

4. Damage and remedies

The primary remedies available for all of the tort actions mentioned above are: 50

(a) damages: payment of monetary compensation for harm suffered, and
(b) the injunction: a court order requiring that the defendant cease and desist the harmful activity.

(a) Damages

Damages in a tort action are calculated on the basis of restoring the plaintiff to the position he would have been in had the tort not occurred. To be actionable the plaintiff must prove actual harm, although in nuisance actions, the inference of harm arises without the need to show proof. In many ways this means that nuisance is actionable *per se*.[61] The general calculation of damages in tort law therefore is based on loss arising to the plaintiff. In GMO cases, the calculation of likely losses would include but not be limited to diminution of crop value due to contamination, additional costs involved in satisfying any labelling requirements applicable to the crop, the costs of removing the contamination (if possible) and so forth. However, the plaintiff must be careful. Tort law is not designed to provide a profit to the plaintiff, so a plaintiff may only seek redress for one loss only, thus a plaintiff may not seek both diminution of value in the crop and removal of the contamination. Either the contamination is not 51

[59] *Geddis v Proprietors of the Bann Reservoir* (1878) 3 App Cas 430.
[60] [2000] 1 *New Zealand Law Reports* (NZLR) 265.
[61] *Nicholls v Ely Beet Sugar Factory Ltd* [1936] Ch 343.

removed and the loss is in the value of the crop in the marketplace or the contamination can be removed and the cost of removal is allowable, but there can be no claim for loss of value in the crop. Similarly as outlined below, a plaintiff must take steps to mitigate his loss and so the defendant will not be liable for the more expensive loss. For example if removal of the contamination were to cost € 20,000 and the loss of value in the crop is € 15,000, the defendant will only be liable for € 15,000, even if the plaintiff chose to remove the contamination and incur the € 20,000 expense.

52 In nuisance, the plaintiff must establish physical damage to the land that reduces the value of the land. In *Halpin v Tara Mines*[62] Ltd the court held that cracks in a building would suffice although on the facts of the case, the plaintiff could not establish that these cracks had been caused by the defendant's activities. Further, in *Hanrahan v Merck Sharp & Dohme*[63] the courts have held that a plaintiff may recover for risks to the plaintiff's health. Damages are also clearly awarded for the loss of enjoyment and use of the land, such that as was stated in *Halpin* the plaintiff can establish "sensible personal discomfort, including injurious affection of the nerves or senses of such a nature as would materially diminish the comfort and enjoyment of or cause annoyance to a reasonable man accustomed to living in the same locality."[64]

53 In negligence actions, the plaintiff must prove harm or damage. However, such damages in negligence are confined to physical harms and any consequential damages arising. In general, no compensation is payable for purely economic loss. In most actions involving GMOs the primary harm will be economic, for example the impurity of organic produce contaminated with GMOs may not necessarily result in physical harm but rather in a diminution of the value of the crop. As pure economic loss, it is not necessarily recoverable under negligence. In *Murphy v Brentwood*,[65] a full House of Lords overturned earlier cases[66] which indicated that pure economic loss was recoverable under the standard negligence principle outlined in *Donoghue v Stevenson*,[67] and confined such actions to the exception created in *Hedley Byrne v Heller*[68] for negligent misrepresentation. The decision has been heavily criticized throughout the common law world. It is more likely however that Irish courts, with a more liberal approach than their English brethren, would not confine their judgments in a suitable GMO application to the narrow view of economic loss. Instead they are more likely to hold that the intermingling of traditional or organic produce with GMOs would constitute physical harm for which the consequential economic loss, such as diminution of crop value, would be eligible for an award of damages.

[62] [1976 7] ILRM 28.
[63] [1988] ILRM 629.
[64] [1976 7] ILRM 28, 30.
[65] [1990] 2 All ER 908.
[66] *Anns v Merton* [1978] AC 728.
[67] [1932] AC 562.
[68] [1964] AC 465.

Damages under *Rylands v Fletcher* are treated similarly to that in negligence although by its very nature an escape under *Rylands* will normally present no difficulty for the plaintiff to establish actual harm,[69] although it will be still subject to the rules on pure economic loss and the limits of remoteness, for a defendant cannot be liable *ad infinitum* even if he is strictly liable for the escape. 54

There is no cap on the quantum of damages payable by the defendant and the plaintiff is entitled to all damages lawfully assessed. On the other hand, compulsory insurance arises only in limited circumstances such as operation of a motor vehicle. Most activities undertaken by a defendant will not oblige the holding of a public liability policy of insurance thus meaning that many defendants are not well placed to satisfy any judgment against them. 55

Further there is a duty on the plaintiff to mitigate losses arising from the action of the defendant. This would probably require the plaintiff to show that he took steps to say for example, remove the presence of GMOs from his produce before sale. It would certainly not justify the plaintiff from treating the entire crop as being tainted and useless and of no value. The plaintiff would still be obliged to yield as much as possible from his production, the defendant only being liable for the difference between that which could have been yielded in the absence of GMO contamination and the value of that which was in fact yielded in the presence of GMO contamination. 56

(b) The injunction

An injunction is the primary form of remedy for nuisance actions, although it is rare in negligence actions and inappropriate for a *Rylands* action given that injunctions relate to continuing events rather than isolated incidents that are the primary remit of the *Rylands* action. 57

Injunctions can either be pre-emptive or reactive. Pre-emptive injunctions seek to restrain the defendant from acts for which a high likelihood of harm is threatened, although no such harm has as yet occurred. They are know as *Quia timet* injunctions: quite literally, 'in fear of' harm applications. Given that the plaintiff seeks a remedy for a threatened or potential harm as distinct from an actual harm, traditionally courts have been reluctant to award such injunctions but in the case of commencement of GMO production, such injunctions could provide a highly useful remedy. However, given that GMO production will presumably be licensed under statutory regulation, it follows that most courts would deny such an injunction, unless the very specific location of the GMO production outweighs the general regulatory framework, for example, where the regulatory framework permits the licensing of GMO production but the defendant is located in an area exclusively operating organic farming. 58

[69] After all liability in *Rylands* arises for the escape of an inherently *dangerous* thing.

59 Reactive injunctions, known as perpetual, interlocutory or interim injunctions, relate to events which have already occurred and will continue to occur unless steps are taken to prevent this from happening. In order to secure an injunction, the plaintiff must establish that damages are an inappropriate remedy. In this regard, the plaintiff has a high burden, since almost any loss or harm can be compensated by a monetary payment. However, the court will award an injunction where such payment would involve a continued recourse to the courts. An injunction would probably be the most suitable remedy where the harm is an escape of a GMO since, although the losses could be compensated each time, such escape is probably more of a recurrent nature than an isolated event for which damages would suffice.

III. Sampling and testing costs

60 A plaintiff would only be able to recover sampling costs in the event of a successful tort action against the defendant, where such costs would be a direct consequence of the harm. However, an individual cannot claim compensation for sampling where there is no contamination nor where the plaintiff fails to win his case against a specific defendant or defendants, even where contamination is found.

IV. Cross-border issues

61 The general rule is that Irish courts will take jurisdiction of any tort action that is committed within the state. Thus, if the plaintiff can establish that the affected land or crop is located within the state, then Irish courts have jurisdiction. Where the defendant resides elsewhere, summons may be served outside of the jurisdiction on the defendant, based on the Rules of the Superior Courts.[70] Moreover, jurisdiction may be founded by the defendant's temporary residence within the jurisdiction, although this does not apply if the defendant is domiciled within one of the contracting states covered by the Jurisdiction of Courts and Enforcement of Judgments (EC) Act 1988[71] discussed below.

62 The applicable law for the case is Irish law since the tort will have occurred within the jurisdiction. However, difficulties arise with respect to the remedies available where a defendant resides outside the jurisdiction. Damages can only be effectively enforced if the defendant has assets within the Irish jurisdiction against which a judgment can be levied. Moreover, enforcement of an injunction outside the jurisdiction is usually futile, since an injunction being a personal remedy requires personal enforcement. In the absence of any bilateral agreement between Ireland and the defendant's jurisdiction, such injunctions are meaningless.

63 In the case of judgments within the EU, then the Jurisdiction of Courts and Enforcement of Judgments (EC) Act 1988 as amended governs. This Act, based

[70] Order 11, Rule 1(f) SI No 15.1986.
[71] First Schedule: Title II, Article 3.

on the Convention on Jurisdiction and Enforcement of Judgments in Civil and Commercial Matters, re-iterates the jurisdiction of Irish courts in cases where the tort has occurred within the jurisdiction. Moreover, it also provides for enforcement of any judgment arising from such jurisdiction. The net effect therefore is that, where judgment is made by an Irish court in a tort action, then the plaintiff may pursue the enforcement of that Irish judgment in any signatory state of the Convention. This will include the enforcement of all remedies, including both damages and injunctions. The Convention and legislation however provide for limited reasons to refuse to enforce such judgments, usually based on public policy grounds or that it does not fall within the scope of the Convention, for example it covers administrative or fiscal matters.

Economic Loss Caused by GMOs in Italy

Alberto Monti/Federico Fusco

I. Special liability or compensation regimes

1. Introduction

A special liability and compensation regime addressing liability for GMOs and covering the economic damage resulting from GMO admixture in non-GM products has been recently enacted in Italy, but only in the form of general principles that still require detailed implementation and specification at regional and local level. Pending implementation, the cultivation of GM crops is prohibited in Italy, subject to criminal sanctions. 1

In November 2004 the Italian Government adopted urgent measures for the coexistence of genetically modified crops with conventional and organic farming, in compliance with Commission Recommendation 2003/556/EC. Some of those measures, which are contained in Decree-law 22 November 2004 no. 279 (hereafter: Dl 279/04), deal specifically with the liability for GMO presence in traditional agricultural products.[1] 2

Dl 279/04, which was subsequently amended and converted by Parliament into Law 28 January 2005 no. 5, defines the minimal normative frame of reference for coexistence, aimed at protecting the biodiversity of natural environment and ensuring both producers' and consumers' choice for the different agricultural production types.[2] The very general principles contained in Dl 279/04 should then have been implemented, at national level, by a decree of the Minister of Agriculture and Forestry[3] and ultimately, at a local and technical level, by coexistence plans adopted in every single Region or autonomous Province (in accordance with the principles stated in the decree of the Minister of Agriculture and Forestry).[4] 3

In particular, art. 5 of Dl 279/04, as amended by Law 28 January 2005 no. 5, established a special fault-based liability regime for damage resulting from 4

[1] See art. 5 of Decree law (Dl) 22. 11. 2004 no. 279, as amended by Law 28. 1. 2005 no. 5.
[2] See art. 1 leg. cit.
[3] See art. 3 leg. cit.
[4] See art. 4 leg. cit.

GMO admixture in non-GM products as a consequence of the violation of coexistence measures, with a reversal of the burden of proof. Pursuant to art. 5, par. 1-*bis*, of Dl 279/04, the farmer who suffers a damage resulting from other farmers' inobservance of the measures contained in the local coexistence plan[5] or in the mandatory business management plan[6] is entitled to compensation. The burden of proving full compliance with all the applicable coexistence measures lies on the defendant. The same liability regime applies to the suppliers of technical means of production and to the other operators of the primary production chain.

5 As a matter of fact, the Minister of Agriculture and Forestry has never enacted any implementing decree; consequently, neither the Regions nor the autonomous Provinces have ever adopted any specific coexistence plan. In addition, in March 2006 the Italian Constitutional Court declared unconstitutional several provisions of Dl 279/04, for they have been considered in conflict with the Regions' legislative competence.[7] The first two articles of Dl 279/04, expressing the general principle of coexistence, have been considered legitimate by the Constitutional Court, but they still have to be implemented at local level. Only in October 2007 the Conference of Regions and autonomous Provinces approved the Guidelines for the enactment of regional provisions on coexistence.[8]

6 With specific reference to the liability regime, it must be noted that only par. 3 and 4 of art. 5 of Dl 279/04[9] have been declared illegitimate by the Constitutional Court. Par. 1, 1-*bis*, 1-*ter* and 2, containing liability rules, are still valid and effective. However, the circumstance that almost every other provision of Dl 279/04 has been deemed unconstitutional,[10] coupled with the high degree of abstraction of the Decree-law in its whole, considerably diminishes the significance of those rules. As mentioned, in any case, the cultivation of GM crops is currently banned on the territory of Italy until coexistence measures are adopted by the Italian Regions,[11] and the authors are not aware of any case of GM-admixture brought to the attention of civil courts in Italy at the time of writing this report.

[5] See supra fn. 4 and accompanying text.
[6] See art. 5, par. 3, of Decree law 22. 11. 2004 no. 279.
[7] Constitutional Court, judgment no. 116 of 17. 3. 2006.
[8] "Linee Guida per le normative regionali di coesistenza tra colture convenzionali, biologiche e geneticamente modificate", approved on October 18, 2007.
[9] Art. 5, par. 3, of Dl 279/04 stated that anyone who wishes to grow GMOs must give notice to the competent authority and must also devise a mandatory business management plan, in accor dance with the Regional coexistence plan; art. 5, par. 4, of Dl 279/04 in turn stated that Regions and autonomous Provinces must keep track of all relevant information concerning GM crop cultivation.
[10] In particular, art. 3 on the implementation of measures for coexistence, and art. 4 on the adop tion of regional coexistence plans.
[11] See art. 8 of Decree law 22. 11. 2004 no. 279, as amended by Law 28. 1. 2005 no. 5. See also *Circolare ministeriale* of the Minister of Agriculture and Forestry of 31 March 2006.

However general and unimplemented, the urgent measures on coexistence adopted in November 2004 by the Italian Government do lay out a special liability regime, applicable in the case of economic damage resulting from GMO presence in non-GM crops. 7

At present, it is not clear whether this liability regime should be deemed as an exclusive one or whether it could overlap with the general tortious liability regime laid down in art. 2043 ff. of the Italian Civil Code (hereafter: CC).[12] 8

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

No special rules are laid down in Dl 279/04 with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned. As a consequence, the general rules on causation set forth in art. 40 and 41 of the Italian Penal Code (hereafter: PC) and deemed applicable to civil torts should apply to liability for GMOs as well. 9

(b) How is the burden of proof distributed?

Dl 279/04 is very unclear on this point. On the one hand, it could be argued that the general rules on allocation of the burden of proving causation are applicable to liability for GMOs too; if this is the case, the damage is not presumed to be the consequence of the breach of coexistence measures, but the injured farmer has to prove the causal link between the alleged damage and the conduct of the defendant. On the other hand, it could be inferred from the wording of art. 5, par. 1-*bis* that the law presumes the damage to be caused by the defendant whenever such a defendant fails to observe coexistence measures. According to this interpretation the defendant could rebut the presumption by proving that there was no causation in fact, because, for instance, the damage was the result of other causal elements outside his scope of action. 10

Different sources of adventitious presence of GMOs are not taken into account by Dl 279/04 but probably, pursuant to art. 5, par. 1-*ter*, they should have been contemplated in the implementing decree of the Minister of Agriculture and Forestry (which has not been enacted). As anticipated, Dl 279/04 merely states that liability for GMOs applies to the suppliers of technical means of production and to the other operators of the primary production chain as well. 11

[12] See *M. Bussani/B. Pozzo/A. Venchiarutti*, Tort Law, in: *J. Lena/U. Mattei* (eds.), Introduction to Italian Law (2002) 217 ff.

(c) How are problems of multiple causes handled by the regime?

12 Dl 279/04 does not deal specifically with problems of multiple causes. The general rules on concurrent causes (art. 41 CP) and joint and several liability (art. 2055 CC) are therefore applicable.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

13 Art. 5 of Dl 279/04 provides a fault-based liability regime with a reversal of the burden of proof on the defendant.

14 As described in answer to question 1, fault arises as a consequence of the mere breach of the provisions contained in the regional coexistence plans and in the business management plans, which means that liability for GMOs will occur upon breach of the measures on coexistence, provided that all the other requirements of tort liability are met (existence of a damage, causation between the conduct of the agent and the damage, and the capacity of the tortfeasor).

15 As the burden of proof is reversed by operation of law, the defendant must give evidence that he/she has acted in full compliance with all the applicable measures on coexistence, otherwise he/she will automatically be considered at fault.

16 Pursuant to art. 5, par. 2, of Dl 279/04 the farmer who proves that he/she used only GMO-free seeds – certified by the public authority and by the producer – is always exempted from liability.

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

17 Not applicable.

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

18 Besides the liability regime described above, Dl 279/04 provides for other sources of compensation, namely the recourse to the existing National Solidarity Fund and the prospective establishment of regional *ad hoc* funds (see answer to question 5).

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

As far as the applicability of the liability regime for GMOs is concerned, the Italian measures on coexistence do not distinguish, at present, between crop production and seed production. 19

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country? In particular, can claims based on general tort law still be brought either simultaneously or subsequently?

At present, the Italian legal system does not provide for coordination between the specific liability regime for GMOs and the general tortious liability regime. As a result, it is not clear whether the liability delineated by Dl 279/04 should be deemed as an exclusive one for cases of admixture or it may overlap with the general liability regime. In particular, it is not clear if a tortfeasor causing admixture could be held liable in tort, according to the general liability regime, even if he/she acted in compliance with all the relevant coexistence measures. In other words, it still has to be determined whether art. 5 of Dl 279/04 contemplates a "regulatory permit defence" or not. In our modest view, even if the provision is somewhat ambiguous, it seems that the injured party can still provide evidence that the defendant acted in breach of the general duty of care and, therefore, must be held liable in tort (notwithstanding compliance with coexistence measures). Under Italian general tort law, in fact, a tortfeasor can be held liable even if he/she acted in compliance with all applicable administrative law rules, if breach of the general standard of diligence can be demonstrated by the injured party. It should also be noted that Italian Courts may consider the cultivation of GM crops as a "dangerous activity" pursuant to art. 2050 CC, which would entail the application of a quasi-strict liability regime.[13] 20

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described? In what way is pure economic loss handled differently to other types of losses, if at all?

According to art. 5, par. 1-*ter* of Dl 279/04 the different types of damages that can be awarded to compensate the consequences of admixture should have been defined by the implementing decree of the Minister of Agriculture and Forestry (which has not been enacted). Failing a specific definition, general rules of tort law should be applicable. 21

[13] Pursuant to art. 2050 CC, whoever causes damage in the performance of a dangerous activity is liable to pay compensation if he or she does not prove that all adequate measures aimed at preventing the damage have been duly taken.

22 The Italian Civil Code does not provide for a general definition of "damage", however the term is generally understood as designating something injurious to an interest or, more narrowly, something detrimental (to property or person) as resulting from "injury to an interest". Art. 2056 CC, which lays down the tests to assess the magnitude of the damage inflicted, refers to art. 1223 ff. CC, pursuant to which the measure of recoverable damages shall include both the loss sustained and the lost profits (economic detriment).

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

23 Dl 279/04 does not provide specifically for feared admixture; however it seems reasonable to conclude that only losses deriving from actual admixture would be recognized as compensable, according to the general rules of tort law.

(c) Where does the scheme draw the line between compensable and non compensable losses?

24 Once again, there are no specific provisions in this regard.

(d) What are the criteria for determining the amount of compensation?

25 Please refer to the answer to question 4 (a) above. Types of damages and criteria for determining the amount of compensation should have been defined by the implementing decree of the Minister of Agriculture and Forestry, which has not been enacted.

(e) Is there a financial limit to liability?

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

26 No, there is not financial limit to liability. However, pursuant to art. 5, par. 1-*ter* of Dl 279/04, the implementing decree of the Minister of Agriculture and Forestry should have provided for the recourse to specific insurance policies and procedures, aimed at covering the losses suffered by both the farmer whose crops have been contaminated and the injurer who has been held liable for admixture.

(g) Which procedures apply to obtain redress?

27 The injured farmer may take ordinary proceedings for civil liability against the wrongdoer alleging that he has suffered a damage resulting from the defendant's breach of the coexistence measures, which *per se* implies fault on

the part of the wrongdoer according to art. 5 of Dl 279/04. Please refer to the answers to questions 2 (b) and 3 (a) for what concerns the burden of proof.

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

The liability regime laid down in Dl 279/04 does not provide specifically for injunctive relief. Nonetheless, it can be argued that the rules on emissions are applicable to GMO admixture as well. 28

Pursuant to art. 844 CC landowners may prevent neighbours from discharging smoke, heat, exhalations, noise and other escape of substances as long as they go beyond ordinary tolerability, considering site conditions. The remedy is an injunction prohibiting emissions from a property located in a neighbourhood area. According to this rule, the infiltration of GMOs in traditional crops from neighbouring fields may be considered an "escape of substances beyond ordinary tolerability" and thus lead to the grant of an injunction. 29

5. Compensation funds

(a) Are there any compensation funds?

Pursuant to art. 4 of Dl 279/04 the Regions and the autonomous Provinces could have set up compensation funds specifically aimed at restoring the original conditions of the fields contaminated with GMOs. The functioning of those funds should have been regulated by the implementing decree of the Minister of Agriculture and Forestry, which has not been enacted. Anyway, art. 4 of Dl 279/04 has been declared unconstitutional and the regional funds have not been set up. 30

Moreover, pursuant to art. 5, par. 1-*ter* of Dl 279/04, the implementing decree of the Minister of Agriculture and Forestry should also have regulated the access of injured farmers to the existing National Solidarity Fund, set up by Legislative Decree 29 March 2004 no. 102 and aimed at preventing and restoring the losses suffered by agriculture as a result of natural catastrophes and calamities. 31

According to the recently approved Guidelines for the enactment of regional provisions on coexistence, every Region ought to set up a fund to cover any damage that cannot be compensated under the rules of tortious liability.[14] 32

(b) How are these funds financed?

The National Solidarity Fund is exclusively financed by the State budget. 33

According to the Guidelines for the enactment of regional provisions on coexistence, regional funds should be financed by: (1) a regional levy on GM crops, 34

[14] See ch. 12.1 of the Guidelines.

(2) a regional levy on the other operators of the GM crops' production chain, (3) the fees of the courses attended by the farmers and the other operators of the GM crops' production chain to obtain a mandatory licence to operate, (4) administrative sanctions, (5) levies on experimental sites, (6) other resources destined to regional funds by the Regions.[15]

(c) Is there any contribution granted by the national or regional authorities?

35 Please refer to the answer to 5 (b) above.

(d) Is the contribution to the fund mandatory or voluntary?

36 Please refer to the answer to 5 (b) above.

(e) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

37 Not applicable.

(f) How are the funds operated?

38 The operation of the National Solidarity Fund and the procedures to obtain compensation for loss with regard to GMO admixture should have been regulated by the implementing decree of the Minister of Agriculture and Forestry, which has not been enacted. As far as losses deriving from natural calamities are concerned, funds are allocated by the Minister of Agriculture and Forestry upon request of the Regions and autonomous Provinces.

39 According to the Guidelines for the enactment of regional provisions on coexistence, regional funds should cover only those quantifiable economic losses that could not otherwise be compensated under the general rules of tortious or environmental liability.[16] Claims must be filed within one solar year after the harvest of the damaged products.[17]

(g) Are there any provisions for recourse against those responsible for the actual cause of the loss?

40 Not applicable.

[15] See ch. 12.1 of the Guidelines.
[16] See ch. 12.2 of the Guidelines.
[17] See ch. 12.4 of the Guidelines.

6. Comparison to other specific liability or compensation regimes

To what extent is the specific liability or compensation regime that you have described comparable to other such schemes in your country, e.g. to product or environmental liability? Does it fit into a broader system, or is it rather to be regarded as exceptional?

41 The special liability regime introduced by art. 5 of Dl 279/04, as amended by Law 28 January 2005 no. 5, does not seem to fit into a broader system and it is not directly comparable to the product liability regime nor to the environmental liability regime currently in force in Italy. The most similar regime is that of art. 2050 CC, pursuant to which whoever causes damage in the performance of a dangerous activity is liable to pay compensation if he/she does not prove that all adequate measures aimed at preventing the damage have been duly taken. Compared to art. 2050 CC, the special liability regime for damage resulting from GMO admixture in non-GM products seems to be more favorable to the defendant. Indeed, the proof of compliance with coexistence measures should be easier to prove than the proof of having taken all adequate measures aimed at preventing the occurrence of the loss, since coexistence measures are specifically listed in the coexistence plan and in the business management plan. It will all depend, of course, on how specific and detailed such coexistence measures will in practice be.

II. General liability or other compensation schemes

1. Introduction

42 Please refer to the answers of section I.

2. Causation

43 Not applicable.

3. Standard of liability

44 Not applicable.

4. Damage and remedies

(a) How is damage defined and measured?

45 The only definition of the kind of losses covered by this study can be found in the recently approved Guidelines for the enactment of regional provisions on coexistence. According to the Guidelines, the losses that can be compensated by the regional funds are: (1) depreciation of contaminated products, (2) costs associated with sampling and testing for GMO presence in other products, (3) lost chances, such as the chance to enter a given sales channel.[18]

[18] See ch. 12.3 of the Guidelines.

(b) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

46 Please refer to the answer to question I.4 (a) (no. 21) above.

(c) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

47 According to the Guidelines for the enactment of regional provisions on coexistence, operators need a regional authorization to grow GM crops. Authorization should be subject to obtaining liability insurance.[19]

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

48 No, there are no such rules in the Italian jurisdiction. The only reference to the compensation of sampling and testing costs can be found in the Guidelines for the enactment of regional provisions on coexistence (see supra no. 30 ff.).

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

49 No, since at present, as mentioned, the cultivation of GM crops is prohibited in Italy, subject to criminal sanctions.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

50 No, there are no special jurisdictional or conflict rules, nor other specific provisions aimed at resolving cross-border cases of admixture.

2. General rules of jurisdiction and choice of law

51 Pursuant to art. 62 of Law 31 May 1995 no. 218 on the reform of the Italian system of conflict of laws, liability for unlawful acts (art. 2043 ff. CC) is governed by the law of the State where the event occurred. Nevertheless, the injured person may demand application of the law of the State where the fact which caused the damage occurred. According to this rule cases of Italian crops contaminated by foreign GMOs would be governed by Italian law unless the injured farmer demands application of the law of the State where the admixture originated.

[19] See ch. 9.4 of the Guidelines.

52 As far as jurisdiction is concerned, reference should be made to art. 2 and to art. 5, par. 3 of the Brussels Convention of 27 September 1968 on jurisdiction and the enforcement of judgments in civil and commercial matters, ratified in Italy by Law 21 June 1971 no. 804. According to the Brussels Convention persons domiciled in a Contracting State shall, whatever their nationality, be sued in the courts of that State. Nonetheless, in matters relating to tort, delict or quasi-delict, a person domiciled in a Contracting State may be sued in the courts of the State where the harmful event occurred.

Economic Loss Caused by GMOs in Latvia

Agris Bitāns

I. Special liability or compensation regimes

There are special regulations regarding GMOs in different legislative acts of the Republic of Latvia, for instance, the Law on Circulation of Seed (*Sēklu aprites likums*) adopted by Parliament on 07.10.1999, the Regulation of Genetically Modified Organisms and Novel Foods Monitoring Council No. 322 (*Ģenētiski modificēto organismu un jaunās pārtikas uzraudzības padomes nolikums*) adopted by the Cabinet Ministry on 19.09.2000, Regulations on the Crop Seeds Cultivation and Seeds Merchandising No. 253 (*Labības sēklaudzēšanas un sēklu tirdzniecības noteikumi*) adopted by the Cabinet Ministry on 13.05.2003, Regulations on the Limited Usage of Genetically Modified Organisms and Intentional Distribution on Environment and Market, as well as Monitoring Order No. 333 (*Noteikumi par ģenētiski modificēto organismu ierobežotu izmantošanu un apzinātu izplatīšanu vidē un tirgū, ka arī par monitoringa kārtīgu*) adopted by the Cabinet Ministry on 20.04.2004, Regulations on Order, How to Organise or Carry out Verification of Sort and Pass a Decision about Declaring Results of Sort's Verification No. 243 (*Kārtība, kādā organizē vai veic šķirnes pārbaudi un pieņem lēmumu par šķirnes pārbaudes rezultāta atzīšanu*) adopted by the Cabinet Ministry on 28.03.2006. 1

Despite these there is no specific special liability or other compensation regime provided by legislation. Besides, there is no discussion in Latvia regarding a special regime of liability for economic damage resulting from actual or feared GMO presence in non-GM crops. 2

II. General liability or other compensation schemes

1. Introduction

As indicated above, there is no specific liability or other compensation regime in Latvia. This means that in cases when a person suffers economic damage resulting from actual or feared GMO presence in non-GM crops, compensation of the damage is the subject of general regulation of the Civil Law. 3

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

4 According to Art. 1775 of the Civil Law, compensation shall be payable for damage which is not accidental. Art. 1773 defines three types of damage depending on the causal link between the action and result. A loss shall be considered: direct where it is the natural and inevitable result of an illegal act or failure to act; indirect where it is caused by an occurrence of particular circumstances or relationships; and accidental where caused by a chance event or *force majeure.* Based on that, the court must establish whether the alleged damage is a direct or indirect result of the presence of the GM crop.

(b) How is the burden of proof distributed?

5 Generally it is the obligation of the plaintiff to prove that the damage was caused by an illegal conduct of the defendant. There is a possibility for a reversal of the burden of proof, in the sense that the damage under certain conditions may be presumed to be the consequence of the presence of a certain GM crop, e.g. if it is established that the GMO farmer failed to apply proper segregation measures or other requirements defined by law.

(c) How are problems of multiple causes handled by the general regime?

6 Generally in cases where there are problems of multiple causes the court must try to clarify whether or not the resulting damage was accidental, i.e., was the damage too remote from the illegal conduct of a particular person?

7 Generally the law recognises joint and several liability as a solidary obligation. Such kind of obligation is established when the subject-matter of a certain action is indivisible (Art. 1764) – for instance, if the illegal conduct was carried out by more than one person and it is impossible to define the influence and result of the actions of each separate person or the harmful result arising as a result of their mutual actions (Art. 1675[1]).

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

8 According to new doctrinal developments, the existence of fault and its degrees are based on an evaluation of the defendant's conduct. Therefore, culpa-

[1] Art. 1675. If a criminal offence has been committed jointly by more than one person, they shall be solidarily liable for the losses caused thereby.

bility seems to be a better term than fault to use in civil liability[2]. Moreover, courts seek justification under law if somebody's rights or legal interests are breached. Legal theory also points out the existence of a presumption of fault in civil law, which means that the tortfeasor has an obligation to show justifications of fault absence. Clearly established statutory rules defining the required conduct for GMO agriculture facilitate to prove breach (unlawful conduct) which is a necessary precondition for civil liability.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

If a strict liability regime is applicable (for instance as with food products), there are still a set of defences which will be available to the actor, for instance 'acts of God' or *force majeure*, wrongful acts or omissions of third parties or the plaintiff. The defendant will have the burden of proving the existence of the mentioned circumstances. 9

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

Our jurisdiction does not provide for special rules applicable to cases of nuisance or similar neighbourhood problems. 10

4. Damage and remedies

(a) How is damage defined and measured? In what way is pure economic loss handled differently to other types of losses, if at all?

Art. 1770 of the Civil Law defines damage (a loss) as any deprivation which can be assessed financially. Only damage already suffered gives a right to compensation (Art. 1771). The Law grants compensation for any actual damage including lost profit (Art. 1772). 11

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

Damage from only the fear that products of a farmer are no longer GMO free (e.g. because of GMO cultivation in his vicinity) may not be recognised as 12

[2] *K. Torgāns*, Vainas vai attaisnojumu meklējumi civiltiesībās (Seeking of fault or justification in civil law), *Latvijas Vēstnesis*, vol. 20 (375) 2005; *K. Kārkliņš*, Vainas nozīme, nosakot civiltiesisko atbildību (Importance of fault, for establishing civil liability), *Latvijas Vēstnesis*, vol. 15 (370) 2005.

compensable by the courts. Mostly, actual admixture as that caused by illegal conduct will be required.

(c) Where does your legal system draw the line between compensable and non compensable losses?

13 Our legal system divides damage (a loss) as compensable and non-compensable. Any accidental damage caused by a chance event or *force majeure* ('acts of God') according to Art. 1774 of the Civil Law is not required to be compensated by anyone. Also a victim may not claim compensation if he or she could have, through the exercise of due care, prevented the loss. An exception to this provision shall be allowed only in a case of malicious infringement of rights (Art. 1776). The second question has no clear answer, because issues of causal link will be evaluated by the court. Only if the court recognises that there is a direct or indispensable causal link between the actual contamination of the crops of only one of the farmers in the region and the losses of other farmers in the same region, will these farmers have a right to compensation for the damage suffered.

(d) What are the criteria for determining the amount of compensation in general?

14 In general the amount of compensation is prescribed as the recovery of actual damage. The main aim of compensation is restitution of the previous situation or to compensate all loss suffered, including lost profit. If a crop with GMO presence still has any value, the amount of damage will be calculated as the difference between the contractual amount and the residual value. If not, the entire contractual value will be determined as being compensable damage.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

15 There is no financial limit to liability. But the Civil Law does not provide compensation for loss which the plaintiff could have avoided through the exercise of due care (Art. 1176). An exception to this provision shall be allowed only in a case of malicious infringement of rights.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

16 There is no mandatory obligation for operators to obtain liability insurance or to provide for other advance cover for potential liability.

(g) Which procedures apply to obtain redress in such cases?

17 None.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

No. 18

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

The Cabinet Ministry adopted on 20.04.2004 Regulations on the Limited Usage of Genetically Modified Organisms and Intentional Distribution on Environment and Market, as well as Monitoring Order No. 333 (*Noteikumi par ģe nētiski modificēto organismu ierobežotu izmantošanu un apzinātu izplatīšanu vidē un tirgū, ka arī par monitoringa kārtīgu*), which regulates the procedure of monitoring GMOs, but there are no specific regulations regarding the testing for GMO presence in other products. The Food and Veterinary Service organises the testing for GMO presence in food products. 19

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

In any case if there is a court trial, Art. 121 of the Civil Procedural Law grants the possibility to appoint an expert to test for GMO presence in other products. General principles require that the person who requested an expert should pay the necessary amount of the expert's fees into the court's account. The party who loses the case should cover all the expenses, including the expert's costs. 20

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

If the court appoints an expert to conduct the testing, in accordance with Art. 44 of the Civil Procedure Law, such costs are recoverable if the tests prove actual GMO presence. 21

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no special jurisdictional or conflict of laws rules in force or planned in our jurisdiction which apply to harm of the kind described in the introduction to this questionnaire, nor are there any other specific provisions aimed at resolving cross-border cases. 22

2. General rules of jurisdiction and choice of law

23 Art. 20 of the Civil Law determines that obligations arising from wrongful acts (tort) shall be adjudged in accordance with the law of the place where the wrongful acts took place.

24 Civil Procedure Law determines that actions (claims) against a defendant shall be brought in a court in accordance with the place of residence or location of the defendant (Art. 26). If the defendant's place of residence is unknown, or they have no permanent place of residence in Latvia, the action shall be brought in a court in accordance with the location of the defendant's immovable property or their last known place of residence (Art. 27). An action arising in relation to the action of a subsidiary or representative office of a legal person may also be brought in a court in accordance with the location of the subsidiary or representative office (Art. 28).

Economic Loss Caused by GMOs in Lithuania

Gediminas Pranevicius

I. Special liability or compensation regimes

At the moment in the Republic of Lithuania there does not exist any special liability or other compensation regime which specifically addresses liability for genetically modified organisms (GMOs). The Law on Genetically Modified Organisms (2001-06-12 No.IX-375 with latest changes, art. 13, 14) states that in the case of economic damage, resulting from GMO usage/activity, liability occurs in accordance with existing laws of the Republic of Lithuania. General liability rules are presented in the Civil Code (art. 6.245–6.304). 1

The project on the Rules of Coexistence of Genetically Modified, Conventional and Organic Crops has been prepared but the results are not publicly available yet. 2

Administrative responsibility for the breach of GMO usage rules is foreseen by the Administrative Code, art. 89^1. 3

II. General liability or other compensation schemes

1. Introduction

As mentioned above, at the moment in Lithuania there does not exist any special liability or other compensation regime which specifically addresses liability for genetically modified organisms. General liability rules (reviewed below) would apply to cases of economic damage resulting from GMO presence in traditional crops. 4

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

The rule of causation is stated in the Civil Code art. 6.247. According to this rule the causal link between the debtors' actions (active actions or passive attitude) 5

and the damage inflicted means that the actions have taken place earlier than the damage, and the damage is the result of the debtors' actions. Debtors' actions are one of the causes (but not necessarily the only cause) of the damage inflicted.

6 To establish the causal link between the alleged damage and the presence of the GM crop it has to be proven that the presence of the GM crop is the cause (sufficient but not necessarily the only cause) for the alleged damage.

(b) How is the burden of proof distributed?

7 The burden of proving the causal link is left to the claimant, who has to prove that the debtors' actions are sufficient (but not necessarily the only) reason for the damage inflicted. The court makes the final decision taking into account all significant circumstances, e.g. the conduct of the aggrieved party, degree of fault of the debtor, etc.

8 The Lithuanian Civil Code does not foresee the possibility of a reversal of the burden of proof of the causal link.

(c) How are problems of multiple causes handled by the general regime?

9 The Civil Code (art. 6.279) establishes the general rule of joint liability when damage is jointly inflicted by several persons (damage is the result of actions of several persons). In cases of joint collective liability, reciprocal claims of debtors are determined by considering the fault of each of the debtors.

10 Where damage may have resulted from different actions performed by several persons (the actions of each person separately could have caused the damage) joint collective liability will be applied. Each of the persons may escape liability if they prove that the damage inflicted could not be the result of their action (there is no causal link between the damage and their actions, but there is a causal link between the damage and another person's action).

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

11 In accordance with general liability provisions, the unlawfulness of an act is not presumed and has to be proven by the claimant (Commentary of the Civil Code of the Republic of Lithuania, Book 6, art. 6.246). Speaking about non-contractual (delictual) liability, Civil Code art. 6.263 states that every person has a duty to behave in such a way that his actions (active actions or passive attitude) do not cause damage to another person. In this case the principal of general tort in the Lithuanian tort system establishes the presumption of an unlawful act and fault every time damage occurs. (Commentary of the Civil Code of the Republic of Lithuania, Book 6, art. 6.263) The claimant does not have to

prove fault and the unlawfulness of the act – it is the privilege of the defendant to show that he acted according to the law and that he is not at fault. The Civil Code establishes the general duty of care. If statutory rules defining the nature and degree of any special duty of care (e.g. the required conduct for GMO agriculture) exist, these rules would apply. It has no effect on the burden of proof.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

The Lithuanian Civil Code allows the application of a strict liability regime in cases established by law or contract (art. 6.248 part 1). One of these cases is the liability for damage caused by a hazardous activity (art. 6.270), which is defined as an activity raising major danger to the environment and the people around it. The Civil Code does not give a definite list of types of hazardous activities. Every time the question arises, it has to be answered by evaluating two major criteria: the hazardous features of the activity itself and the possibility (or impossibility) of a human being to control the process entirely. It is obvious that GMO agriculture could match the criteria of the strict liability regime. 12

A person engaged in a hazardous activity has the duty to compensate for the damage his activity causes. Three defences available to the actor are foreseen: "acts of God" (force majeure), wrongful acts of the claimant or gross negligence of the claimant. 13

In cases of strict liability due to hazardous activities the defendant is the possessor (not necessarily the owner) of the potentially hazardous object. If a third party suffers losses because of the interaction of several sources of hazard, the liability of the possessors of sources of hazard is solidary. In cases where the possessor of hazardous objects suffers losses, they are compensated according to general liability rules. 14

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

The Lithuanian jurisdiction does not provide for special rules applicable to cases of nuisance or similar neighbourhood problems. General rules apply to cases of that kind. 15

4. Damage and remedies

(a) How is damage defined and measured?

In Lithuanian law damage is generally defined (Civil Code art. 6.249) as direct losses (meaning loss or harm to property, and/or expenses suffered), and also 16

deprived profit which a person would have received if the wrongful acts had not been committed. Damage expressed in terms of money is called losses.

17 The total amount of losses could also include: reasonable expenses incurred to prevent or mitigate damage, reasonable costs incurred in assessing civil liability and damage, reasonable costs incurred in the process of recovering losses within an extrajudicial procedure.

18 There is no presumption of damage, so it is the claimant's duty to prove damage and the amount of damage. If the claimant can not prove the exact amount of damage and/or the claimant's evidence is contradictory and the other party does not agree with the amount of the damage, it is the court that makes the final decision.

19 Damage is measured in prices valid on the day when the court judgment is passed. If it is required by the nature of the obligation or by special law, prices valid on the day the damage occurred or on the day when the claim was brought might be applicable.

20 Pure economic loss is handled on a general basis.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

21 The loss of a farmer whose customers only fear that his products are no longer GMO free (but there is no actual admixture) might be recognized as damage – deprived profit, which a person would have received if the wrongful acts had not been committed. The loss is compensable when other essential elements of civil liability are present, i.e. wrongful acts, causal link between the wrongful acts and damage and fault (if it is not a case of strict liability).

(c) Where does your legal system draw the line between compensable and non compensable losses?

22 According to Lithuanian tort law losses are compensable every time when the presence of all the elements of civil liability are proven. As it was mentioned above, losses like deprived profits may be compensable for all the farmers if:

(1) wrongful acts are committed,
(2) a causal link is established – wrongful acts (or passive attitude) are sufficient (but not necessarily the only) cause of the damage inflicted,
(3) fault is proven (if it is not the case of strict liability).

(d) What are the criteria for determining the amount of compensation in general?

The Civil Code art. 6.251 states that damage must be compensated in full (exceptions are foreseen by the law). Full compensation means bringing the aggrieved party to the position they had been in before damage was inflicted. Enrichment of the aggrieved party or impoverishment of the debtor is not allowed. These principles should be equally applied to the kind of cases covered by this study. If the property (e.g. crops) is totally lost, the value of the whole product should be covered; if the property is only harmed (e.g. the crops are contaminated with GMOs), depreciation should be covered; if additional expenses are suffered (e.g. due to GM crops in the vicinity), these expenses should be covered, etc. 23

Lithuanian legislation has no general rules on how depreciation has to be calculated. In proving the amount of damage, the aggrieved party may hire experts to evaluate the property or the harm caused to the property (to calculate depreciation). The Civil Code (art. 6.249, part 4) foresees the possibility of including reasonable expenses of the experts in the amount of compensable damage. 24

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

The Lithuanian Civil Code (art. 6.251, part 1) establishes the principal of full compensation for the damage inflicted, which would also be applicable to the kind of cases covered by this study. Limited liability can only be established by special laws or contract. 25

The court is allowed to mitigate damages, but only on an exceptional basis – when the application of the full compensation principal would violate the principals of justice, bona fides and common sense. The mitigation of damages might be initiated by the court itself or by request of the defendant. The reasons for mitigation could be the nature of liability, financial status of the parties, the kind of relation between the parties, etc. 26

However, the amount of mitigation may not exceed the amount for which the debtor has or ought to have covered his civil liability by compulsory insurance (Civil Code art. 6.251, part 2). 27

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

General rules of liability insurance are established in the Lithuanian Civil Code art. 6.254. It is said that liability insurance can be obtained on a voluntary basis, liability insurance is compulsory when it is foreseen by a specific law. 28

29 At the moment there are no rules establishing the duty of GM crop operators to obtain liability insurance or to provide for other advance cover for potential liability.

(g) Which procedures apply to obtain redress in such cases?

30 According to general liability insurance rules (Civil Code art. 6.254 part 2) the insurance company has limited liability, i.e. the duty of redress does not exceed the insurance benefit. When the insurance benefit is not sufficient for the compensation of damage, the difference between the insurance benefit and the actual amount of damage shall be redressed by the insured person himself.

31 As mentioned above, at the moment GM crop operators do not have a duty to obtain liability insurance.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

32 There are no general compensation schemes applicable in such cases.

III. Sampling and testing costs

33 There are no specific rules which cover costs associated with sampling and testing for GMO presence in other products. Governmental institutions (e.g. State Seed and Grain Service, State Plant Protection Service, State Food and Veterinary Service) take samples and test products following state and institutional legal acts. Testing and sampling initiated by state services is financed by the state.

34 This year an amendment to the Law on Genetically Modified Organisms was prepared (2006-03-03 No.XP-1166 art. 7(2)) which foresees that monitoring costs associated with the deliberate release of GMOs into the environment are to be financed by the state.

35 Speaking about Lithuanian tort law, it was already mentioned above (see: part 4 question (a)) that damage is understood as loss of or harm to property, expenses suffered (direct losses) and deprived profit. Besides that, damage could include reasonable costs incurred in assessing civil liability and damage (Civil Code art. 6.249 part 4). In order to prove damage the claimant might need to sample and test for GMO presence. In such a case reasonable costs of sampling and testing could be included in the overall amount of losses, which have to be compensated if the claim of the aggrieved party is satisfied.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no special jurisdictional or conflict of laws rules or any other specific provisions aimed at resolving cross-border cases which would apply to GMO agriculture in Lithuania. 36

2. General rules of jurisdiction and choice of law

Speaking about tort, general rules of jurisdiction and choice of law are established in the Civil Code (art. 1.43). By the choice of the aggrieved party, either the law of the state where the wrongful act took place or where the damage occurred is applicable. Where it is impossible to determine the place (state) of the wrongful act or damage, the law of the state most closely related with the case is applicable. After the damage arises, the parties may agree that the law of the state where the case is being heard is applicable. If both parties are domiciled in the same state, the law of that state is applicable. Subject to the applicable law, terms and the extent of liability, terms of excuse from liability are applied, the person's liability is determined. If damage is caused by several persons, the applicable law shall be determined for each of them separately in accordance with the rules mentioned above. 37

Economic Loss Caused by GMOs in Luxembourg

Patrick Goergen

I. Special liability or compensation regimes

1. Introduction

In the Grand-Duchy of Luxembourg, the legal framework for the use and marketing of GMOs is constituted by the law dated 13 January 1997[1] and modified by the law dated 13 January 2004[2]. This law contains provisions of general importance (subject matter, definitions, technical means to genetic modifications, conditions of honour and professional qualification), provisions regarding the use of GMOs (exclusions, classification of GMOs and their use, principles, risk evaluation, authorization request, public consultation, authorization modalities, principles of good macro biological practice, registration), provisions regarding volunteer dissemination and marketing of GMOs (risk evaluation, principles, authorization request, public consultation, administrative decision, intra EU information exchange) as well as miscellaneous provisions (ministry committee, confidentiality, preventive measures, measures in the case of accidents, cooperation with the EU Commission and other Member States, liability, inspection, withdrawal of authorizations, court actions, control powers, criminal sanctions). The law of 13 January 1997, as amended by the law of 13 January 2004, is hereafter referred to as "the Law". 1

The legal framework is to be completed by a new law in discussion, a draft of which was presented by the Luxembourg Government on 10 September 2004 (hereafter named "the Draft Coexistence Law")[3]. 2

[1] *Loi du 13. 1. 1997 relative au contrôle de l'utilisation et de la dissémination des organismes génétiquement modifiés*, Mémorial A 1997 of 24. 1. 1997, 10. and 13. 2. 1997, 584 (rectifica tif).

[2] *Loi du 13. 1. 2004 modifiant la loi du 13. 1. 1997 relative au contrôle de l'utilisation et de la dissémination des organismes génétiquement modifiés*, Mémorial A 5 of 23. 1. 2004, 22.

[3] *Projet de loi portant réglementation du commerce des semences et plants et concernant la mise en culture de semences et plants génétiquement modifiés*, Parliament document no. 5380.

3 The Draft Coexistence Law is intended to replace the law of 9 November 1971 regulating the trade in seeds and plants and introduces, on the basis of Article 26, paragraph 1, of EC Directive 2001/18[4] and the EU Commission's Recommendation of 23 July 2003[5], measures to manage the coexistence between genetically modified crops and conventional and organic crops. The Draft Coexistence Law proposes the general framework of measures which the Government considers adequate to ensure the coexistence between genetically modified crops and other farming methods. Articles 10 to 12 of this draft law list a number of conditions to be met by whosoever intends to import and cultivate genetically modified seeds and plants. The proposed conditions aim, by means of broad transparency, to ensure the responsible use of genetically modified seeds and plants with a view to better ensuring coexistence, preventing risks of accidental dissemination and avoiding irreparable disturbance of the ecological balance in certain particularly sensitive areas. The Draft Coexistence Law aims to lay down in detail the conditions for using and cultivating genetically modified seeds and plants. The Government adopted a restrictive approach based on the primacy of the precautionary principle. This approach guarantees free choice for producers with regard to the different production lines as well as free choice for consumers between GM and non GM products. It aims to preserve flora and fauna from damage caused by GMOs.

4 The provisions of the Draft Coexistence Law leave to grand-ducal regulations to define conditions for GM crops and the coexistence between GM and non GM crops, to prohibit for certain plants the use of GMOs and to prohibit the cultivation of certain types of GM crops in protected or ecologically sensitive regions for reasons of environmental protection. Pursuant to a draft grand-ducal regulation[6], the Government intends to require that all imports into the Grand Duchy of Luxembourg of GM seeds and plants must be declared to the Agricultural Technical Services Administration (hereafter named "ASTA") and that any plot of land intended to be cultivated with GM seeds or plants must be declared to ASTA at least two months before sowing (this declaration having to contain publicly accessible information on the designation and characteristics of the genetic medication). Cultivation of GM seeds and plants would be prohibited in the protected areas of Community and national interest and in natural parks. GM corn crops would have to respect a separation distance of 800 metres, GM beet and rapeseed crops a separation distance of 3 kilometres from conventional crops of the same species, organic crops and the protected areas and natural parks.

5 In the comments to the Draft Coexistence Law, the Government underlines that one of the big issues of coexistence is the compensation for economic

[4] Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC, OJ L 106 of 17. 4. 2001.

[5] Http://ec.europa.eu/agriculture/publi/reports/coexistence2/guide_en.pdf.

[6] Http://www.gmo free regions.org/countries/luxembourg/Luxembourg_coexistence_law.pdf.

losses which conventional or organic farmers could risk in the case of unintentional presence of GMOs in their harvest, as the farmers would be obliged to sell their products at a very low price. In the Government's position, such a compensation would face, legally speaking, the problem of causality between the action and the damage as it would be difficult to prove this causality. Even if the solution to this problem could be facilitated by the introduction of a fault presumption at the charge of the GMO user or by the creation of a collective fund, the Government has decided not to follow such ways, but to stay with the general rules regarding civil liability. However, GMO farmers would be obliged to subscribe to a civil liability insurance contract.

The Draft Coexistence Law has been commented on, at the time being, by the Chamber of Commerce[7], the Chamber of Agriculture[8] and the Council of State[9]. The parliamentary committee of Agriculture has proposed certain amendments to the Draft Coexistence Law[10]. The parliamentary committee of Economic Affairs has already adopted a report[11], but the Government, considering critical remarks from the European Commission and the Council of State, still wants to suggest new amendments to the draft law. The Draft Coexistence Law shall therefore not be voted on by the Luxembourg parliament before October 2006. 6

2. Causation

For the time being there is no regulation concerning the applicable criteria with regard to the establishment of a causal link between the alleged damage and the presence of the GM crop within special liability. The Law as well as the Draft Coexistence Law do not foresee a special liability system for GMO matters. Therefore the general rules of liability (described hereafter) apply. 7

3. Damage and remedies

As there are no specific legal rules concerning GMO liability, these questions are irrelevant to the Luxembourg legal system. 8

4. Compensation funds

Luxembourg has no compensation funds already set up and there is no project planned to set up this kind of fund in the future. The Law as well as the Draft Coexistence Law do not foresee special compensation funds at all, neither private nor public. Therefore the questions mentioned hereafter are irrelevant to the legal situation in Luxembourg. 9

[7] Opinion issued on 8. 11. 2004 (Parliament document 5380 1).
[8] Opinion issued on 28. 10. 2004 (Parliament document 5380 2).
[9] Opinions issued on 22. 2. 2005 (Parliament document 53803) and 4. 7. 2006 (Parliament document 5380 6).
[10] Opinion issued on 20. 3. 2006 (Parliament document 5380 5).
[11] During its meeting on 19. 1. 2006 (Parliament document 5380 4).

II. General liability or other compensation schemes

1. Introduction

10 As there is no specific liability or other compensation regime applicable in the Grand Duchy of Luxembourg at the time being, general liability rules, especially Articles 1382 to 1384 of the Luxembourg Civil Code would apply to cases of economic damage resulting from GMO presence in traditional crops.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

11 Luxembourg law requires the fulfilment of three conditions to establish civil liability (fault, damage and causation), whether liability is contractual or fortuitous. Every plaintiff who can prove a fault/act[12]/negligence/imprudence[13], damage and a direct link between this fault/act/negligence/imprudence and his damage can claim compensation.

12 With regard to general rules of the Luxembourg Civil Code, the damage suffered by the plaintiff must be the direct and immediate consequence of an unlawful conduct, i.e. the violation of a contractual or legal provision or a tort (fault/act/negligence/imprudence) committed by the defendant.

13 By assessing the direct link between the damage and the unlawful conduct, Luxembourg courts apply the theory of the appropriate causality ("*causalité adéquate*"). According to this theory, the court will assess whether the fault, act or imprudence could be considered as a cause which would normally have led to the alleged damage. Any potential causes which might have contributed to the damage being submitted by the plaintiff to the court are analysed by the court in accordance with this principle.

14 In GMO matters, a plaintiff would therefore have to prove the link between the damage and the presence of the GM crop concerned.

(b) How is the burden of proof distributed?

15 Traditionally, the burden of proof is laid upon the plaintiff.

16 Pursuant to Article 58 of the New Civil Code on Procedure[14], the burden of proof rests upon the party who invokes a legal or factual point to validate his

[12] Art. 1382 of the Luxembourg Civil Code: "Tout fait quelconque de l'homme, qui cause à autrui un dommage, oblige celui par la faute duquel il est arrivé, à le réparer."

[13] Art. 1383 of the Luxembourg Civil Code: "Chacun est responsable du dommage qu'il a causé non seulement par son fait, mais encore par sa négligence ou par son imprudence."

[14] "Il incombe à chaque partie de prouver conformément à la loi les faits nécessaires au succès de sa prétention."

claim or defence. Evidence is produced to explain, support and confirm the party's claim or defence.

The evidence submitted to the court needs to win the entire conviction of the court. Evidence can take the form of written documents, whether official or private affidavits or testimonies. For "legitimate reasons" ("*motifs légitimes*"), an individual can refuse to be heard as a witness (mainly people subject to rules on professional secrecy) as can the parents and any person related in direct lineage to a party or to his/her spouse[15]. Anyone other than the parties themselves can be heard as witnesses. 17

Verbal testimonies are secondary to written evidence. The judge has an important role in deciding whether or not a witness shall be heard, and subsequently in organising the hearings[16]. It is the judge alone who questions the witnesses, possibly at the request of the parties. The judge may decide on the relevance of the questions submitted by the parties. 18

It should be stated at this point that the Luxembourg legal system requires a compulsory oath by the witness before his testimony is given except for persons unable to testify. To a certain extent, the judge has the power to decide whether oral testimonies were given thoroughly and sufficiently. 19

The genuineness and authenticity of written proof may only be challenged by the other party following a specific procedure called "*Du faux incident civil*" as laid down by Article 310 of the New Civil Code on Procedure[17]. Unless such proceedings are initiated, written documents will be deemed to be genuine. 20

Evidence or witnesses from other jurisdictions can be admitted before Luxembourg courts if they meet the legal criteria as laid down in the Civil Code and/or the New Civil Code on Procedure. 21

The burden of proof is not reversed in GMO matters. However, we refer to the possible set of defences an author may invoke, as explained hereafter. 22

[15] Art. 406 of the Luxembourg New Code on Civil Procedure: "Est tenu de déposer quiconque en est légalement requis. Peuvent être dispensées de déposer les personnes qui justifient d'un motif légitime. Peuvent s'y refuser les parents ou alliés en ligne directe de l'une des parties ou son conjoint, même divorcé."

[16] Art. 59 of the Luxembourg New Code on Civil Procedure: "Le juge a le pouvoir d'ordonner d'office toutes les mesures d'instruction légalement admissibles."

[17] "Celui qui prétend qu'une pièce signifiée, communiquée ou produite dans le corps de la pro cédure, est fausse ou falsifiée, peut s'il y échet, être reçu à s'inscrire en faux, encore que ladite pièce ait été vérifiée, soit avec le demandeur, soit avec le défendeur en faux, à d'autres fins que celles d'une poursuite de faux principal ou incident, et qu'en conséquence il soit intervenu un jugement sur le fondement de ladite pièce comme véritable."

(c) How are problems of multiple causes handled by the general regime?

23 Basically the theory of appropriate causality ("*causalité adéquate*") has an influence on Luxembourg case-law. This theory endeavours to link the damage to that of its antecedents which normally were likely to produce it, as opposed to other antecedents which would be the cause of such damage only in exceptional circumstances.

24 In the framework of this theory, it is necessary to ask, with regard to each event whose causal intervention in the realization of the damage is called upon, if this event, in the usual course of things and according to the experience of life, would normally cause such detrimental effect. It is therefore necessary to go back to the past and consider, through a "retrospective objective forecast", if such an event was likely to cause the damage.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

25 The general rule is that the plaintiff who has suffered loss needs to prove that the defendant was responsible for the damage caused. To succeed in a negligence claim, the plaintiff must prove that the defendant failed to exercise the care and skill expected of a reasonable practitioner in that field.

26 Articles 1382 and 1383 of the Luxembourg Civil Code provides that compensation is due for any fault, act, negligence or imprudence committed by the author. Bad faith is not required.

27 The assessment of any fault/act/negligence/imprudence will be analyzed *in abstracto*, i.e. the judge will assess the fault by referring to the concept of a normally diligent, prudent and wise person ("*homme normalement diligent, prudent et avisé, le bon père de famille*"). Notwithstanding the objective analysis, the judge has to take into consideration the external circumstances, i.e. the judge compares the behaviour of the author of the act with any wise individual who would be confronted with a similar situation.

28 If legislation, possibly in GMO matters, has been infringed by a person, such infringement automatically implies fault.

29 As already mentioned above, the burden of proof lies on the plaintiff. Pursuant to Article 58 of the New Civil Code on Procedure, the burden of proof rests upon the party who invokes a legal or factual point to validate his claim or defence.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance "acts of God", wrongful acts or omissions of third parties, etc.)?

Under tort liability rules established under Articles 1382 and 1383 of the Luxembourg Civil Code, the actor may try to escape condemnation by proving either: 30

- a commandment by virtue of the law or a legitimate authority, a necessity, a personal defence, a constraint or a private defence[18];
- the victim's wrongful act or omission, or the fact that the victim accepted the risk of damage[19]. It must be underlined that the wrongful act or omission of third parties cannot be imposed on the victim.

Article 1384 (1) of the Luxembourg Civil Code[20] establishes a presumption of liability in respect of the person with custody of the property which occasioned the damage. A person with custody is a person who exercises the powers of use, supervision and control over the property in question. This means that a person can be liable not only for the damage he causes by his own actions, but also for damage caused by the actions of persons for whom he is responsible or property he has in his custody. The injured party must establish the active involvement of the property in effecting the damage; this is presumed if the property entered into contact with the damaged asset and if it was in motion during such contact ("material intervention in the damage"). In such a case, the injured party does not have to prove that the supplier committed a wrongful act or omission. These provisions also apply to substances (for example GM seeds or plants) which pollute, contaminate or otherwise affect non GM products. 31

Under strict liability rules established under Article 1384 (1) of Luxembourg Civil Code, the actor may try to escape condemnation by proving either: 32

- that the damage was caused by an outside cause which is not attributable to the presumed actor and was external, unforeseeable and irresistible; here, case-law ranges from the events of nature, the victim's fault or act to a third party's fault or act[21]; or
- the property's inactive part in the realization of the damage[22].

It has to be added that under the Draft Coexistence Law, special rules – not yet effective at the time being – would protect a farmer who has unintentionally 33

[18] *G. Ravarani*, La responsabilité civile des personnes privées et publiques, *Pasicrisie luxembourgeoise* (2nd ed. 2006) no. 934 944, 727 731.
[19] *G. Ravarani* (supra fn. 18) no. 945 965, 731 749.
[20] "On est responsable non seulement du dommage que l'on cause par son propre fait, mais encore de celui qui est causé par le fait des personnes dont on doit répondre, ou des choses que l'on a sous sa garde."
[21] *G. Ravarani* (supra fn. 18) no. 968 987, 749 766.
[22] *G. Ravarani* (supra fn. 18) no. 989, 767.

benefited from patented seeds and plants against an action from the patent holder, for example in a case of transfer from one farming land to another.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

34 Liability can also be established on the basis of neighbourhood disruption[23]. For liability to be incurred, two requirements have to be met. Detriment must be caused to the neighbour and such detriment must exceed normal neighbourhood inconveniences. This is an objective liability and therefore not based on fault[24]. Case-law asserts that the right to compensation is based on breach of the equal rights of neighbours to enjoy their properties[25].

35 As soon as the breach of the equal rights of neighbours arises, the owner is liable for the damage caused by the exercise of his rights. He cannot escape condemnation by proving that a third party's act was the real cause of the damage or by proving an "act of God" intervened[26].

4. Damage and remedies

(a) How is damage defined and measured? In what way is pure economic loss handled differently to other types of losses, if at all?

36 The damages will be assessed on the basis of the injury suffered by the plaintiff.

37 Under Luxembourg law, two types of compensation are available: (i) compensation for material damage, and (ii) compensation for moral damage.

38 The evaluation will be made on the day the court decision determining the indemnity to be allocated to the plaintiff is rendered. The estimates used therefore are ex-post estimates.

39 Luxembourg law recognizes only the reparatory character of the allocation of damages. It does not allow punitive or exemplary damages.

40 Furthermore, the damage to be indemnified must be personal, certain and direct. It is important to stress that any future damage can also be indemnified, provided that it is proven to be certain (for example: loss of future income).

[23] Art. 544 of the Luxembourg Civil Code: "La propriété est le droit de jouir et de disposer des choses, pourvu qu'on n'en fasse pas un usage prohibé par les lois ou par les règlements ou qu'on ne cause un trouble excédant les inconvénients normaux du voisinage rompant l'équilibre entre des droits équivalents."

[24] Court of Appeal, 8. 4. 1998, 31, 28; Court of Cassation, 29. 6. 2000, 31, 438.

[25] Luxembourg District Court, 19. 11. 1982, 26, 63; 22. 2. 1983, 26, 113.

[26] *G. Ravarani* (supra fn. 18) no. 300 309, 271 283.

Potential damage is not indemnified. It should be underlined at this point that Luxembourg courts also compensate a loss of chance provided the damage is proven. This requires a two part evaluation: (i) an assessment of what the victim's situation would have been if the chance relied upon had been realized, and (ii) an assessment of the chance itself, i.e. the degree of likelihood of the occurrence of the event. 41

Moreover, if it is very difficult to prove the existence of damage, it is very likely that a court will not allocate any compensation for the damage. If the damage is proved, but it is impossible to assess its quantum in a very precise manner, the judge will assess the damage *ex aequo at bono*. 42

Pure economic losses are not handled differently to other types of losses. 43

(b) Is the loss of a farmer whose customers only a fear that his product are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

Potential damage is not indemnified under Luxembourg law. Judges have to consider only future elements which present a sufficient degree of certainty and are deemed (susceptible) to be evaluated. In no case will judges consider a possible future change of a situation which only constitutes a hypothetical event as such a case may not be compensated[27]. 44

(c) Where does your legal system draw the line between compensable and non compensable losses?

The loss to be compensated must be personal, certain and direct. It is important to stress that any future damage can also be indemnified, provided that it is proven to be certain (for example: loss of future income). 45

(d) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

The limitations of the damages to be allocated are directly linked to the proven harm of the plaintiff. Otherwise there are no formal limits on the damages that can be claimed. 46

The profit made by the defendant could serve as evidence for the assessment of the damage suffered by the plaintiff. 47

The Luxembourg legal system, recognizing only the reparatory character of the allocation of damages, does not allow damages to be of a punitive or exemplary nature. Luxembourg law considers that the State alone is competent to bring actions which are punitive and which serve as deterrents unlike damage 48

[27] Court of Appeal, 26. 2. 1997, no. 19083.

actions which aim to obtain compensation for the alleged prejudice suffered by the plaintiff.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

49 Under Luxembourg law there are no financial limits to liability. Moreover, there are no rules to mitigate damages once liability is established.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

50 Pursuant to Article 35 of the Law, without prejudice to his responsibility towards third parties through the use or dissemination of GMOs for all purposes but marketing, the holder of a GMO authorization has to compensate the necessary costs spent by the State or the townships and by public establishments in order to fight the effects of accidents caused due to GMO presence. If the authorized activities cause damage to landscapes or nature, the holder of the GMO authorization will be obliged to put back into their original state the objects or places that suffered damage. This obligation will continue to apply to the holder of the authorization even if he ceases his activities.

51 The grant of Government authorization for the confined use of GMOs is subject to the production by the applicant of evidence of sufficient financial guarantees. This sufficiency is estimated by the ministry. These guarantees must be provided in order to guarantee the financial consequences deriving from liability imposed on the holder of the authorization. These financial guarantees can emanate from the applicant of the authorization himself or a third party, or from an insurance contract concluded for this specific purpose[28].

52 Any Government authorization regarding intentional dissemination of GMOs for purposes other than market placing is subject, according to the Law[29], to a civil liability insurance contract with an authorized insurance company.

53 Under the Draft Coexistence Law, whoever intends to cultivate GM seeds and plants is obliged to subscribe to a civil liability insurance contract, covering any economic losses that the cultivation may cause to neighbouring non GM crops. However, this provision was strongly criticized by the Council of State, who indicated that such an obligation would pursue the same purpose as the above mentioned Article 35 of the Law, and therefore recommended the deletion of this provision.

[28] Art. 35 (3) of the Law.
[29] Art. 35 (4) of the Law.

(g) Which procedures apply to obtain redress in such cases?

Infringements of the rules laid down in the Law shall be investigated and reported by agents of the Police, ASTA, the Environment Department, Health Direction and National Health Laboratory. In the performance of their duties, these agents act in the capacity of officers of the Criminal Investigation Department. They report infringements by means of reports which are deemed true until proved otherwise. Their competences extend over the whole territory of the Grand-Duchy. 54

The above mentioned infringements are punishable by imprisonment from between 8 days and 6 months and a fine of between € 251 and € 1,250,000 or only either of these penalties. Furthermore, confiscation of the infringing goods and illegal profits may be ordered. 55

Ecological associations have the right to commence court actions even if they do not have any material interest herein and this is so even if their collective interests double with the interests represented by the public prosecution office; they do not have a claim themselves, however, to have the original state of the places which suffered from the action restored. 56

Plaintiffs are able to commence actions against the author, but also directly against the insurance company on the grounds of Article 89 of the Law of 27 July 1997 regarding insurance contracts[30]. The author and his insurance company would be liable "*in solidum*"[31]. 57

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

There are no specific rules in Luxembourg law which cover costs associated with sampling and testing for GMO presence in other products. 58

The Health Direction as well as the National Health Laboratory are, under Article 36 of the Law, responsible for inspection and other control powers to ensure the correct implementation of the Law. Infringements are to be investigated by agents of the Police, ASTA, the Environment Department, Health Direction and the National Health Laboratory. 59

[30] "L'assurance fait naître au profit de la personne lésée un droit propre contre l'assureur. L'indemnité due par l'assureur est acquise à la personne lésée, à l'exclusion des autres créanciers de l'assuré."

[31] Court of Appeal, 19. 2. 1935, 13, 461; Luxembourg District Court, 23. 4. 1993, Bull. AIDA, no. 4, 90; 20. 4. 2005, no. 91/2005 XVII.

60 Under Draft Coexistence Law, ASTA agents would be able to perform inspections by sampling during the certification and marketing of seeds and plants and on cultivation thereof, and can take samples including ones from seeded plots of land. They would also be allowed to inspect all supporting documents and premises in which the seeds and plants are usually stored[32].

61 The Draft Coexistence Law contains a provision leaving to a grand-ducal regulation to lay down the fees payable by seed and plant producers that subject their crops to inspection, and may delimit cultivation areas for specific species of seeds and plants. The maximum amounts of the above-mentioned fees would not exceed € 0.50 per hundred square metres and € 10 per 100 kg of seeds or plants.

62 Applicants for Government authorization regarding intentional dissemination of GMOs for purposes other than market placing have to pay, according to the Law[33], a fee in excess of € 250 – though limited to € 5,000 – to cover the government's instruction costs.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

63 There are no specific industry-based rules.

64 Under general rules, in the case of an accident, the authorization holder has to cover the necessary expenses expended by the State, the townships and the public establishments, including sampling and testing costs. The financial guarantee to be provided by the authorization holder has to cover such financial consequences.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

65 These costs are only recoverable if the tests prove GMO presence and if damage has occurred from the GMO crops.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

66 There are no specific provisions aimed at resolving cross-border cases.

2. General rules of jurisdiction and choice of law

67 Any person who can prove a direct, certain and personal interest may sue for damages before Luxembourg courts. This principle applies too for persons

[32] Art. 14 of the Draft Coexistence Law, not yet in force.
[33] Art. 39 (4) of the Law.

from outside Luxembourg, provided Luxembourg courts would have jurisdiction to rule on their claim in accordance to private international law.

The question of liability is in principle subject to the law of the place where the damage has occurred[34], but case-law also decides, despite the principle of the "*lex loci delicti*", that actions for liability in tort are governed by the law of the country with which it is most closely linked[35]. 68

[34] Luxembourg District Court, 14. 7. 1959, 17, 501.

[35] Court of Appeal, 16. 6. 1970, 21, 347; *F. Schockweiler*, Les conflits de lois et les conflits de juridictions en droit international privé luxembourgeois (2nd ed. 1996) 150.

Economic Loss Caused by GMOs in Malta

Eugene Buttigieg

I. Liability or compensation regimes

1. Introduction

GMO cultivation is allowed in Malta but requires the authorisation of the Malta Environment and Planning Authority in terms of the Environment Protection Act (Chapter 435 of the Laws of Malta) and the subsidiary legislation enacted under it. Thus, for experimental cultivation or for the placing on the EU market for the first time of non-EU approved GMOs, authorisation is necessary under the Deliberate Release into the Environment of Genetically Modified Organisms Regulations, 2002 (LN 170 of 2002) transposing Directive 2001/18/EC, though no authorisation is required for the cultivation of GMOs which are placed on the EU common seed catalogue. Authorisation is also required for the contained use of genetically modified micro-organisms (first time use of premises and individual contained uses) under the Contained Use of Genetically Modified Micro-Organisms Regulations, 2008 (LN 127 of 2008) transposing Directive 90/219/EC. Although these regulations replaced regulations that had been in place since 2002 (LN 169 of 2002), to date, the Authority has not yet received any applications concerning these activities. 1

However, none of the above mentioned pieces of legislation or any other legislation contain any provisions prescribing special liability or compensation for GMO contamination of non-GM crops, though a provision (Regulation 17(4)) of the Contained Use of Genetically Modified Micro-Organisms Regulations, 2008 provides that in the event of an incident involving a significant and unintended release of genetically modified micro-organisms in the course of their contained use which may present an immediate or delayed hazard to human health or the environment, the Malta Environment and Planning Authority, in collaboration with the Occupational Health and Safety Authority, may require the user to defray or contribute towards any or all of the costs incurred by the Authority arising from such an incident. An official from the Malta Environment and Planning Authority reported that issues relating to liability and redress will be addressed only upon future implementation of Directive 2004/35/EC on Environmental Liability and of 2

the Cartagena Protocol on Biosafety to which Malta became a party to on 5 April 2007.

3 In the absence of special liability or other compensation regimes in Malta for GMOs, the general tort regime found in the Civil Code (Chapter 16 of the Laws of Malta, Articles 1029-1051A) is applicable. Article 1031 provides that 'every person … shall be liable for the damage which occurs through his fault'.

4 Concurrently, the Environment Protection Act (Article 24) provides that, without prejudice to the civil law provisions on tortious liability, any person who causes damage to the environment shall be liable to pay to the Environment Fund, set up by the same Act, such sum as may, in the absence of an agreement, be fixed by the court *arbitrio boni viri* to make good the damage caused to the environment and suffered by the community in general by the non-observance of any law or regulation by such person or by his negligence or wilful act or inability in his art or profession. This action would be instituted by the Chairman of the Fund on behalf of the Government.

5 The product liability provisions (Articles 56-71A) of the Consumer Affairs Act (Chapter 378 of the Laws of Malta) provide for compensation by the producer in the case of damage caused by a defect in a product including a 'primary agricultural product'. Such liability may not be limited or excluded by any term of contract or in any manner whatsoever. These provisions do not exclude or limit the rights or remedies available to the injured person under the aforementioned provisions of the Civil Code. An aggrieved person may therefore have recourse to either remedy. However, the product liability provisions would not be applicable to economic damage caused by GMO contamination to non-GM crops as the regime is applicable only to defective products that are in circulation.

6 Consequently, at present, in the absence of special liability laws for GMOs, the only applicable regimes are the general ones provided by the tort provisions of the Civil Code and the provisions of the Environment Protection Act.

2. Causation

7 Case law relating to the general tort provisions of the Civil Code referred to above has established that, as a general rule, it must be shown that the tortious act was the immediate and direct cause of the damage (*Cefai v Attard*). However, occasionally, Maltese courts have also held that, provided the nexus is not too remote, it may suffice if the tortious act was only an indirect cause of the damage; provided, that is, that the act led to a state of affairs which would not have existed were it not for the act concerned (*Brookes v Sare* and *Mallia v Moore*).

8 The tort provisions of the Civil Code are silent on the question of who bears the onus of proof. However, the provisions on court procedure in the Code of Organisation and Civil Procedure (Chapter 12 of the Laws of Malta) prescribe

that as a general rule, unless provided otherwise in any law, the burden of proving any fact rests in all cases on the party alleging it (Article 562). Moreover, it is an established principle in case law that the onus of proving the causal link between the damage and the unlawful act rests solely with the party claiming damages, i.e. the plaintiff (*Gatt v Calleja*).

The law does not envisage any circumstances where there might be a reversal of the burden of proof. Even where the tortious act or omission constitutes a breach of a duty imposed by law, though the plaintiff might not need to prove negligence (there were cases such as *Caruana v Skapinakis noe* where the court held that the non-observance of regulations is prima facie proof of negligence), he would still be required to prove the causal relationship between the act or omission constituting the breach of duty and the alleged damage (Article 1033 of the Civil Code). 9

There are no rules allocating the costs of testing or of other means to establish causation but the general rule followed by Maltese courts is to allocate all costs borne by the party winning the case to the party losing the case. However, the courts enjoy wide discretion in apportioning these costs. In fact, Article 223 of the Code of Organisation and Civil Procedure, while providing that 'every definitive judgment shall award costs against the party cast', states that 'in all cases, it shall be lawful for the court to order that the costs shall not be taxed as between party and party, when either party has been cast in some of the points at issue, or when the matter at issue involves difficult points of law, or where there is any other good cause'. 10

Moreover, where an *ex parte* expert witness is produced by any of the parties, Article 223 leaves it up to the court to determine how the costs of this expert witness are to be apportioned between the parties. Where two or more persons are condemned in costs, in terms of Article 224, each person would be deemed to be condemned in solidum or in proportion to his interest in the cause according to the decision on the merits. 11

In view of this wide discretion enjoyed by the courts and given the absence of any case law concerning allocation of the costs of testing or of other means to establish causation, it is not possible to establish how a Maltese court might allocate costs incurred in proving causation in a case involving GMOs. 12

The law also provides for joint and several liability in the case where several persons are responsible for the same damage (Article 1049 of the Civil Code). However, since the tort regime, unlike the product liability regime, is fault-based, the Civil Code provision prescribes that in tort cases this rule applies only where all the persons concerned acted 'with malice'. Where not all the persons acted with malice, the persons who acted without malice are liable only for that part of the damage for which they are responsible. Where it cannot be ascertained for which part of the damage each is responsible, Article 1050 of the Civil Code provides that the injured party may claim that the whole 13

damage be made good by any one of the persons concerned, even though all or some of them acted without malice, saving the right of the defendant to seek relief from the other or others.

3. Type of regime

14 Liability under the tort provisions of the Civil Code is based on the concept of fault (Article 1031). Article 1032 provides that 'a person shall be deemed to be [at] fault if, in his own acts, he does not use the prudence, diligence and attention of a *bonus pater familias*'; thus a 'reasonable person' standard. Moreover, there is liability for the ensuing damage when a person, even without the intent to injure, voluntarily or through negligence, imprudence or lack of attention acts or fails to act, in breach of a duty imposed by law (Article 1033). This implies that if there were statutory rules (currently there are none) defining the required conduct for GMO agriculture, a person acting voluntarily or negligently in breach of such rules would automatically be liable for the damage caused to the traditional agricultural product but the injured party would still have to prove the damage and the causal relationship.

15 Liability for damage would also subsist if a person, lacking the necessary skill, undertakes any work or service and causes damage to others through his unskilfulness (Article 1038). Again, here, this implies that if GMO cultivation requires a person to have a certain specialised skill, damage caused to neighbouring non-GM crops as a result of such unskilfulness, would give rise to liability. Yet again, however, the damage and the causal relationship would have to be proved.

16 However, a person who makes use, within the proper limits, of a right competent to him is not liable for the resulting damage (Article 1030).

17 As stated above, the onus of proof of fault rests with the party seeking damages while contributory negligence would lead to a reduction in the damages awarded by court.

18 Moreover, *force majeure* is a defence as damage caused by *force majeure* is borne by the victim. Article 1029 of the Civil Code provides that: 'Any damage which is produced by a fortuitous event, or in consequence of an irresistible force, shall, in the absence of an express provision of the law to the contrary, be borne by the party on whose person or property such damage occurs'.

19 Likewise, the compensation regime under the Environment Protection Act is also fault-based as Article 24 provides for liability for damage only where the person concerned has caused such damage through non-observance of any law or regulation or by his wilful act or negligence or inability in the performance of his art or in the exercise of his profession.

20 This is in stark contrast to the product liability regime under the Consumer Affairs Act that is a strict liability regime in line with the Product Liability Direc-

tive, though it then allows a long list of defences that include the development risks defence.

4. Damage and remedies

Under the general tort regime, the damage that is recoverable is the actual loss that the tortious act has directly caused to the injured party, the expenses that the latter may have incurred in consequence of the damage and the loss of actual or future earnings suffered as a result of the tortious act (Article 1045). Thus, the damage must be certain in the sense that it is inevitable either because it has already been suffered or because a cause exists that will inevitably produce such damage. So future damage is covered provided it is inevitable. The underlying principle in the Maltese law of tort is the *restitutio in integrum* principle, namely that the claimant should be put in the position he would have been in, had the tortious act or omission not occurred. 21

However, there are no rules or criteria set out in the law concerning the quantification of damages and the courts have developed quantification rules only in the sphere of personal injury and traffic accidents, by far the most common compensation related cases to come before them. 22

Interest on damages due is payable from the date of the writ of summons if the plaintiff files a liquidated demand for damages in his writ or from the date of the judgment if the court has to quantify the damages itself where the claim is for unliquidated damages. Where the plaintiff's action is preceded by a judicial act requesting the defendant to pay a liquidated sum, interest runs from the date of the notification by judicial act rather than from the date of the subsequent writ of summons (*Citadel Insurance plc v Ciantar*). 23

Under the environmental liability regime, as explained above, in the absence of an agreement, the compensation payable to the Environment Fund for the damage caused to the environment would be quantified by the court at its discretion (Environment Protection Act, Article 24). 24

Under both laws there are no financial thresholds or ceilings limiting liability. However, tort law (Article 1051 of the Civil Code) provides that if the injured party contributed or gave occasion to the damage by his imprudence, negligence or lack of attention, the court would, in assessing the amount of damages payable to him, determine, at its discretion, the proportion of damage to which he has so contributed or occasioned through his negligence or imprudence and it would reduce the compensation accordingly. 25

There is no general or specific duty at law to obtain liability insurance or to provide for other advance cover for potential liability nor are there any general compensation schemes available under Maltese law. 26

27 Outside these regimes there is a general provision in the Civil Code that might be applicable to a situation where the GMO cultivation in one field causes damage to non-GM crops in neighbouring fields. Article 539 of the Civil Code provides that 'where any person has reasonable cause to apprehend any serious and impending damage to a tenement or other thing possessed by him, from any building, tree or other thing, he may bring an action demanding, according to the circumstances, either that the necessary steps be taken to obviate the danger, or that the neighbour be ordered to give security for any damage the plaintiff may suffer therefrom'.

28 Actions for damages fall within the competence of the Courts of Civil Jurisdiction. For claims exceeding € 11,646.87 the competent court is the Civil Court, First Hall while for claims below this figure but exceeding € 3,494.06 the competent court is the Court of Magistrates and below this figure the Small Claims Tribunal. There is a right of appeal to the Court of Appeal.

29 The limitation period for an action for damages in tort is two years (Article 2153 of the Civil Code) but if the tortious act or omission constitutes a criminal offence, the limitation period applicable even for the civil action would be the one prescribed for the criminal action (Article 2154(1) of the Civil Code). On the other hand, the limitation period for the action for damages in respect of environmental liability under the Environment Protection Act is eight years (Article 24).

II. Sampling and testing costs

30 There are no specific rules governing the costs associated with sampling and testing for GMO presence in other products. The Deliberate Release into the Environment of Genetically Modified Organisms Regulations, 2002 require the applicant, seeking authorisation for the placing on the market of GMOs, to make control samples available to the Authority on request. In the case of the deliberate release of GMOs for other purposes (other than for placing on the market), the Authority is empowered by the same regulations to carry out tests or inspections as may be necessary for control purposes. However, in neither case do the regulations deal with the issue of the costs of such testing or sampling.

31 Nor are there any general rules relating to the issue of sampling and testing costs. However, the Product Safety Act (Chapter 427 of the Laws of Malta) that empowers the Head of the Market Surveillance Directorate of the Malta Standards Authority to carry out testing and sampling and other control measures to ensure the safety of products, in Article 33 provides that the Court, on convicting a person of an offence under the Act, may order that person to reimburse to the Directorate the costs incurred in the testing, analysis, inspection and examination of the product or samples thereof involved in the court proceedings. In the absence of specific rules, the Court might, by analogy, take a similar approach in the case where the damage has been shown to result from GMO presence.

III. Cross-border issues

There are no special jurisdictional or conflict of law rules for economic harm of the kind envisaged by this questionnaire nor any specific provisions aimed at resolving cross-border cases. 32

The general conflict of law rules on jurisdiction are set out in Articles 742–744 of the Code of Organisation and Civil Procedure. However, it is expressly stated that where there is a conflict between the provisions of a regulation of the European Union on this matter and the provisions of this Article, the former shall prevail in respect of matters falling within their domain. Consequently, cross-border jurisdiction issues within an intra-Community context are regulated by Regulation 44/2001. Moreover, Article 20 of the Act of Accession, by amending Annex 1 of Regulation 44/2001, makes the said Articles 742–744 of the Code of Organisation and Civil Procedure inapplicable to cases where the defendant is domiciled in a Member State. 33

However, in the cases where Regulation 44/2001 is not applicable (e.g. where the defendant is not domiciled in a Member State), Article 742 of the Code of Organisation and Civil Procedure provides that Maltese civil courts shall have jurisdiction concerning the following persons: 34

(a) citizens of Malta, provided they have not fixed their domicile elsewhere;
(b) any person as long as he is either domiciled or resident or present in Malta;
(c) any person, in matters relating to property situated or existing in Malta;
(d) any person who has contracted any obligation in Malta, but only in regard to actions touching such obligation and provided such person is present in Malta;
(e) any person who, having contracted an obligation in some other country, has nevertheless agreed to carry out such obligation in Malta, or who has contracted any obligation which must necessarily be carried into effect in Malta, provided in either case such person is present in Malta;
(f) any person, in regard to any obligation contracted in favour of a citizen or resident of Malta or of a body having a distinct legal personality or association of persons incorporated or operating in Malta, if the judgment can be enforced in Malta;
(g) any person who expressly or tacitly, voluntarily submits or has agreed to submit to the jurisdiction of the court.

Consequently, the courts would have jurisdiction to take cognizance of actions in tort concerning GMO contamination that has occurred in Malta provided the defendants are domiciled, resident or present in Malta. In terms of Article 4(2) of Regulation 44/2001, this applies irrespective of whether the plaintiff is domiciled in Malta or in another Member State. 35

The jurisdiction of the Maltese courts is not excluded by the fact that a foreign court is seized with the same cause or with a cause connected with it. Where a 36

foreign court has a concurrent jurisdiction, the courts may at their discretion, declare the defendant to be non-suited or stay the proceedings on the ground that if an action were to continue in Malta it would be vexatious, oppressive or unjust to the defendant.

37 As far as choice of law rules are concerned, the principle followed by Maltese private international law in relation to actions in tort is that the applicable law is the *lex loci delicti commissi* so that in this case the applicable law would be the law of the country where the GMO contamination has occurred.

Economic Loss Caused by GMOs in the Netherlands

Melissa Moncada Castillo/Willem H. van Boom

I. General liability or other compensation schemes

1. Introduction

There are no specific rules on liability or compensation of damage relating to GMO crops. Obviously, there have been some proposals originating from stakeholders that liability issues should indeed be dealt with and that some compensation scheme should be put in place.[1] No political action has been taken until now. Therefore, the common rules of private tort law apply. 1

Dutch law distinguishes between fault-based liability for wrongful acts, on the one hand, and strict liability, on the other. In Dutch law, fault-based liability for wrongful acts is codified in art. 6:162 *Burgerlijk Wetboek* (Civil Code, BW): 2

1. A person who commits a wrongful act vis-à-vis another person, which can be imputed to him, is obliged to repair the damage suffered by the other person as a consequence of the act.
2. Save grounds for justification, the following acts are deemed to be wrongful: the infringement of a subjective right, an act or omission violating a statutory duty, or conduct contrary to the standard of conduct seemly in society.
3. A wrongful act can be imputed to its author if it results from his fault or from a cause for which he is answerable according to law or common opinion.

As the first paragraph of art. 6:162 BW suggests, fault-based liability consists of two main elements: the wrongfulness of the act itself, and imputability of the act to the person acting. According to the second paragraph of art. 6:162 BW, there are three categories of wrongful acts: infringement of subjective 3

[1] See *Coëxistentie Primaire Sector Rapportage van de tijdelijke commissie onder voor-zitterschap van J. van Dijk; commissiepartijen: Biologica, LTO Nederland, Plantum NL en Platform Aarde Boer Consument*, The Hague, November 2004.

rights (e.g., property and physical inviolability), acts contrary to a statutory duty, and acts contrary to *maatschappelijke betamelijkheid* (i.e., the standard of conduct seemly in society). The category of acts contrary to the standard of conduct seemly in society is by far the most important, especially when the injured party cannot make a claim on the basis of a direct infringement of his property right or physical inviolability. According to case law, a great many factors determine wrongfulness in a concrete case, e.g., foreseeability of the loss (also described as the chance of a loss occurring as a result of the act), the degree of blameworthiness, the costs of avoiding the loss, the nature of the damage, and the relationship between the injured party and the injurer. A prima facie wrongful act is considered not to be wrongful whenever *force majeure*, self-defence, or a statutory provision justifies it.

4 The second element, that of imputability, is divided into three alternative grounds for imputation, the first of which is currently the most important: the person can be blamed for his act (*schuld*, i.e., fault, blameworthiness), or his act or its cause must be imputed to him, either on a statutory basis, or plainly because the *verkeersopvattingen* (i.e., an unwritten source of legal and moral opinion, as it is expressed in case law) demand it. So, according to the third paragraph, tortious liability is incurred not only in a case of subjective fault, but also in a case of objective 'answerability'. The scope of this 'answerability', as an alternative for a 'fault', remains unclear.

5 As far as strict liability is concerned, there are, generally speaking, two main categories of strict liability: strict liability for wrongful acts of other individuals, and strict liability for objects and substances. The former category includes strict liability for employees and for agents, while the latter includes liability for defective movable objects, buildings and structures, product liability, and liability for the inherent risks of hazardous and noxious substances.

6 From the above-mentioned it follows that Dutch law starts by addressing the issue of wrongfulness rather than with the question whether the infringed interest is protected by tort law. Dutch tort law tends not to exclude purely economic interests from protection. Practically speaking the specific case at hand is decisive for the outcome: sometimes the courts conclude that the act or omission was wrongful with regard to the infringed economic interest, and sometimes they conclude that there was no wrongful act. Therefore, pure economic interests as such enjoy protection under tort law just as much – in theory at least – as life, limb, and property. In short, 'economic damage' resulting from GMO presence in traditional crops may be compensated if the respondent is held to have acted (imputably) wrongfully vis-à-vis the claimant.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

According to Dutch law, a two-stage test must be applied. First, the well-known *conditio sine qua non* ('but for') test is applied. According to this requirement there is a causal link between the damage and the GMO presence if the GMO presence was a necessary condition for the existence of the damage. In other words: without the presence there would not be any damage. 7

Obviously, this requirement is too extensive; without any further delimitation too many causal links between the GMO presence and the damage would be seen as the cause of the damage. Therefore, if the first test is met a second is applied: the imputation test. The test is laid down in art. 6:98 BW, which reads: 8

> "Compensation can only be claimed insofar as the damage is related to the event giving rise to liability in such a fashion that the damage, also taking into account its nature and that of the liability, can be imputed to the debtor as a result of this event."

The test was further developed in case law. For instance, the Dutch Supreme Court decided that for the establishment of the causal link it was also necessary that the damage was reasonably imputable to the act (or omission as the case may be).[2] This requirement was thus called the requirement of "reasonable imputability". For a specific damage caused by (in the sense of: *conditio sine qua non*) an unlawful action to be imputable, there are a number of relevant factors that have to be balanced. In general, the damage should not be too exceptional as a result of that unlawful action nor in such a distant relation with it, that it cannot reasonably be imputed to the liable person. 9

The aforementioned case law has been codified in art. 6:98 BW. However, art. 6:98 BW identifies only two of many factors that decide imputation: the nature of the damage and the nature of the liability. Although foreseeability of the damage is not mentioned in art. 6:98 BW, it surely is an important factor as well. As far as the nature of the damage suffered is concerned, both case law and doctrinal writing are inclined to stretch the limits of causal connection very far whenever bodily harm is involved, somewhat less far when damage to property is involved, and the least far in the case of loss related to neither of the former two categories (i.e., pure economic loss). 10

It must be stressed that before the 'reasonable imputability test' can be invoked, in principle the *conditio sine qua non test* should be met first. There are, however, specific conditions under which the requirement of *conditio sine qua non* does not apply: 11

[2] *Hoge Raad* (HR) 20. 3. 1970, *Nederlandse Jurisprudentie* (NJ) 1970, 251, *Waterwingebied.*

- In the case of alternative causation; and
- In the case of two independent concurring causes where each has the ability to bring about the entire damage.

12 In the case of GMO crops, first it must be determined whether the presence of GMOs in crops causes any damage to human health. Otherwise it cannot be said that the presence of GMOs in crops is a *conditio sine qua non* for the damage. To answer this question in the more general sense, scientific research was instigated. The Dutch government was one of the financiers for the realization of this research project. The research was reported in an article which is still pending publication.[3] Until those results are published, the question about the causal link will remain very uncertain. This is also the reason why there is no case law concerning this matter i.e. because there is no evidence that GMOs are harmful to human health. If the results of the research do point out that GMO crops are in fact harmful to human health, the Dutch government will have to take measures in response thereto.

(b) How is the burden of proof distributed?

13 No specific statutory rules or case law are applicable. Therefore the general principles apply. As a starting point the burden of proof lies on the claimant. This rule is laid down in art. 150 RV (*Wetboek van Burgerlijke Rechtsvorder ing*, Code of Civil Procedure). The claimant has to prove the facts underpinning his claim regarding the wrongful act committed. There are two exceptions to this general rule. Firstly, when reasonability and equity desire a different distribution of the burden of proof. For example: under specific circumstances arising when the respondent can more easily obtain the documents needed. Secondly, when an exceptional statutory rule desires a different distribution. For example: art. 6:195 concerning misleading commercials.

14 With regard to the burden of proof concerning causation, the Dutch Supreme Court (*Hoge Raad*) has in recent years developed the so-called *omkeringsre gel*, the 'reversal rule'. In a number of decisions the *Hoge Raad* has stated that, if an act which constitutes a wrongful act is known to create a risk that a specific damage will occur, and if this risk subsequently materialises (so the damage occurs), the causal link between the damage and the act is presumed present, unless the respondent proves otherwise. This rule has been applied, for instance, in traffic accident cases and medical malpractice cases. If this reversal rule is indeed as general a rule as it seems to be, the risk of unknown causes of damage might rest with any respondent who could have caused the damage. However, the exact scope and effect of the reversal rule are still unclear. In recent cases, the extent has been limited to cases in which the risk that materialized was of a certain specific nature that could be associated easily to the wrongful act. Hence, the rule is easily applied to contamination of a neighbouring crop if the contaminating substance is easily associated with a specific

[3] See www.vrom.nl/pagina.html?id 23102.

GMO crop in the area. It is unlikely, however, that it can be applied in a case where a GMO-farmer has acted wrongfully by not taking precautionary measures against migrating pollen dispersal and a drop in profits experienced by all corn producing farmers results after negative publicity. Although there may be evidence of the intermediate cause of negative publicity with respect to corn as such, the market price mechanisms ruling corn trade are far too complicated to say that a drop in profits in corn farming is typically associated with negligent GMO-farming.

(c) How are problems of multiple causes handled by the general regime?

When different persons are liable for damage caused to one claimant, there is a plurality of debtors. The main rule is that all the debtors are liable for an equal share unless they are liable for an unequal share as a result of a statutory provision, usage or contract (art. 6:6 (1) Civil Code). With regard to concurrent tortious acts of two or more persons that concurrently cause the entire damage, art. 6:102 Civil Code states that they are jointly and severally liable. Furthermore, art 6:166 Civil Code provides for joint and several liability in the event that a concerted action causes the wrongful damage. 15

In the case of multiple uncertain causes, art. 6:99 Civil Code provides the following. When the damage may have resulted from two or more events, each of which a different person is liable for and it has been determined that the damage may have been caused by at least one of these events, each one of these persons is liable and therefore liable to repair the damage, unless he can prove that the damage is not a result of the event for which he is liable. Hence, the burden of proof is reversed. The Supreme Court has applied this rule extensively in the *Des dochters* case (HR 9-10-1992, NJ 1994, 535). In this landslide case six women who where injured by a drug claimed compensation from ten different manufacturers of that drug. The women could not prove whether the drug had been marketed by any of the producers (but given their market share it was rather likely that the drug in fact originated from one of them). The Supreme Court decided that all ten producers of the drug were jointly and severally liable. It can be said that this rule also includes uncertain causation. 16

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

Fault-based liability for unlawful acts is based on art. 6:162 BW (Civil Code). Fault-based liability consists of four elements: there must be an unlawful act, the act must be imputable to the actor, there must be damage and there must be a causal link between the damage and the act. 17

18 First, as said, there must be an unlawful act. Art. 6:162 Civil Code defines three acts as unlawful: the infringement of a subjective right, an act or omission violating a statutory duty (e.g., importing a banned GMO-product), or conduct contrary to the standard of conduct seemly in society. This last category of so-called "conduct contrary to the unwritten standard of conduct seemly in society", the so-called *maatschappelijke betamelijkheid*, is the most important one. It can be considered a residual category: whenever the injured party cannot base his claim on either of the first two categories, this last one is his last alternative. Because of its broad scope, many claims are based on this category.

19 Second, the person that committed the unlawful act has to be imputable. For this element the unlawful act must result from his fault (fault-based liability), or from a cause for which he is answerable according to law or common opinion (strict liability). This will be described in the following question. To determine whether there is blameworthiness, theoretically a distinction must be made between the actor and the act. First it must be determined whether the act was unlawful. When that is determined, the actor must be judged. Could and should he have acted in a different way? In other words: would a reasonable person have acted in the same way? As said, this distinction is made in theory, in practice, however, the actor and the act cannot easily be isolated. Thus, in most cases the actor will be considered to have been blameworthy if the act in itself is wrongful.

20 Third, there must be damage. According to art. 6:95 Civil Code, damage consists of patrimonial damage and non-patrimonial damage. Patrimonial damage includes incurred costs and loss of profit (art. 6:96 Civil Code). Death, personal injury, property damage and pure economic loss are on an equal footing in this regard.

21 With regard to non-pecuniary loss the following is relevant. The injured party may only claim non-patrimonial damage in one of the situations mentioned in art. 6:106 Civil Code. Firstly, if the liable party had the intention to cause immaterial damage. Secondly, if the injured party has a physical injury, if his reputation or his honour is damaged, or if his person is harmed in any other way. Thirdly, if the reputation of a person who passed away is damaged (only if that person would, were he alive, have also had the right to compensation for damage to his reputation).

22 The final requirement is that there must be a causal link between the act and damage. This consists of a two-stage test. First, as a rule there must be *conditio sine qua non* (but for test). This test determines whether the act was a necessary condition for the damage. Second, there is the 'reasonable imputability test': it must be reasonable to impute the resulting damage to the act that caused it.

23 The burden of proof is distributed in the same way as described supra. The claimant must prove the existence of the wrongful act. This task consists of

proving all four elements as described. This general rule has two exceptions: when reasonability and equity desire a different distribution of the burden of proof and secondly, when an exceptional rule desires a different distribution.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

There are two main categories of strict liability: strict liability for unlawful acts of other individuals and strict liability for defective objects and substances. Strict liability for unlawful acts of other individuals includes liability of children, subjects and representatives. Strict liability of defective objects and substances include mobile objects, buildings, dumps, animals and substances. 24

Here, there may be two relevant sources of liability. Vicarious liability (art. 6:170 Civil Code) and strict liability for hazardous substances (art. 6:175 Civil Code).[4] 25

(i) Vicarious liability

Art. 6:170 Civil Code defines the liability for tortious acts committed by employees. According to subsection 1 of this article, liability for employees lies on the person in whose service the subject fulfils his duties, if the possibility of committing a mistake was increased by the assignment to fulfil the duty and this person had control over the conduct of the subject. 26

(ii) Hazardous substances

Art. 6:175 Civil Code defines the liability for hazardous substances. Liability rests on anyone who uses or keeps the dangerous substance in his profession or business. As follows from the criteria of art. 6:175, non-professional possessors cannot be held strictly liable. 27

Art. 6:175 Civil Code may be relevant if it is generally acknowledged that the GMO crop poses a specific, inherent and serious threat to life and limb and this risk materializes. Hence, this strict liability can only be applied to inherent dangers of substances which are scientifically proven at the time of the damaging event or exposure. This is not (yet) the case. 28

Art. 6:175 Civil Code creates a strict liability for dangerous substances used or kept in the course of a business or trade. The article defines a dangerous substance as a substance of which it is known that it has such properties as to 29

[4] See generally *W.H. van Boom/C.E. du Perron*, The Netherlands, in: *B.A. Koch/H. Koziol* (eds.), Unification of Tort Law: Strict Liability (2002) 227 255.

pose a special danger of a serious nature to persons or things. Such a 'special danger' is posed in any case (according to the article) by substances which are explosive, oxidative, flammable, or poisonous as defined in specific public law legislation. We do not think that according to the current state of science GMOs as such can be considered dangerous substances. This may depend, however, on the specific case and the specific dangers the GMOs may pose to persons or things. The Ministry of Justice has taken the position that GMO crops are unlikely to be filed under 'dangerous substances' in the sense of art. 6:175 Civil Code.[5] Whether this will also be the courts' position, remains to be seen.

30 Liability arises if the 'special danger' materializes. Since the danger is defined as being 'to persons or things', compensation of *pure* economic loss cannot be based on this article. Hence, we believe that even if GMOs were to be considered as dangerous substances under art. 6:175 Civil Code, a mere drop in turnover as a result of the absence of consumer confidence in crops neighbouring GMO crops would not file as compensable damage.

31 According to art. 6:178 Civil Code liability on the basis of art. 6:175–177 Civil Code is excluded, inter alia, in the following situations:

a) the damage is the result of armed conflict, civil war, revolt, riots, insurgence or mutiny;
b) the damage is the result of a natural event of a exceptional, unavoidable and irresistible nature;
c) the damage is solely caused by following an order or regulation of the government;
d) the damage is intentionally caused by a third party;
e) the damage is (the result of) a nuisance, pollution or any other consequence for which no liability would have existed on the basis of the general principles of tort law if the defendant had caused it intentionally (so the damage is considered an ordinary burden that one has to carry).

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

32 According to art. 5:37 Civil Code, an owner of a piece of land is not allowed to cause nuisance like noise, vibrations, foul odours, smoke, etc. in a way that would cause a wrongful act in accordance with art. 6:162 Civil Code. This article has two aspects. First, it is not permitted for an owner of a piece of land to use his property in a way that causes wrongful nuisance to neighbours (the offensive function). This is a limitation of his property rights. On the other hand, the owner of a piece of land does not have to put up with wrongful nuisance

[5] See *Notitie Ministerie van Justitie Aansprakelijkheid voor schade in het kader van coëxistentie van gg-gewassen en conventionele en biologische gewassen*, in: Coëxistentie Primaire Sector Rapportage van de tijdelijke commissie onder voor zitterschap van J. van Dijk; commissiepar tijen: Biologica, LTO Nederland, Plantum NL en Platform Aarde Boer Consument, The Hague, November 2004, B57.

from any neighbour (the defensive function). However, art. 5:37 Civil Code is not considered to hold a strict liability position. In fact, nuisance can only be considered to be wrongful in accordance with the requirements laid down in art. 6:162 Civil Code. In other words, either an infringement of a subjective right or an act or omission violating a statutory duty, which is imputable to the actor can be a source of tortious liability for nuisance. According to a steady line of case law, liability depends on factors such as: the extent of the risks, the possibility and cost of taking precautionary measures, the nature and extent of the use of the land, prior use of land, etc.[6]

Thus, the presence of GMOs in crops owned by a neighbouring farmer may under specific circumstances amount to a wrongful act. Then the presence of GMOs by a neighbouring farmer can indeed be seen as wrongful nuisance. With regard to the position of the claimant, nuisance can only lead to a claim for compensation if the nuisance was in fact an imputable tortious act of the respondent. 33

4. Damage and remedies

(a) How is damage defined and measured? In what way is pure economic loss handled differently to other types of losses, if at all?

According to art. 6:95 Civil Code, damage consists of patrimonial damage and non-patrimonial damage. Patrimonial damage includes loss suffered and loss of profit (art. 6:96 Civil Code). 34

The victim of the wrongful act has a right to compensation for patrimonial damage when the evidence of a wrongful act is established. Furthermore, there must be a causal link between the damage and the wrongful act (art. 6:98 Civil Code); only damage which is related to the event giving rise to the liability of the debtor in such a way that it can be imputed to the debtor as a result of this event is claimable. For non-patrimonial damage (non-pecuniary loss), there is an extra condition: the injured party may only claim non-patrimonial damage in one of the situations mentioned in art. 6:106 Civil Code. 35

As such, pure economic loss is not special under Dutch law (see supra, Introduction). If the conduct of the respondent is held to be wrongful and all the requirements laid down in art. 6:162 BW have been met, then there is liability. Liability may include pure economic loss. No specific thresholds apply with regard to pure economic loss. Having said that, it may well be possible that the court may consider the respondent not to have acted tortiously vis-à-vis the claimant on the basis that the claimant's interest was of a purely economic category. This depends on the case at hand. 36

[6] See also, *Notitie Ministerie van Justitie* (supra fn. 5) B57 ff.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

37 Although there are no court decisions on this matter, we feel that the loss of a farmer whose customers only fear is that his products are no longer GMO free will not easily be compensated under tort law. We think that a court would prefer the proof of a wrongful act or omission leading to admixture. Having said that, it is theoretically speaking possible that a GMO-farmer can be held liable for, e.g. not informing neighbouring farmers of his GMO-activities – thus depriving them of the possibility to take precautionary measures. In that case, the liability can also cover pure economic losses such as a sudden drop in turnover. Dutch law does not set actual admixture or interference as a formal prerequisite for liability, so in effect the adjudication of compensation for pure economic loss is feasible. Whether compensation is granted may depend on the specific facts of the case.

(c) Where does your legal system draw the line between compensable and non compensable losses?

38 There is no clear cut answer to this question, as much will depend on the specific case at hand. Dutch law does not work with pre-set circles of meritorious claims. According to art. 6:98 Civil Code a causal link between the damage and the act of the debtor is required. This causal link is established if the damage is related to the debtor's act giving rise to his liability in such a way that it can be imputed to him. In the example only one of the crops in a region is actually contaminated, but consumers fear that the entire region is affected. This fact can be of influence with the establishment of the causal link, but it cannot directly determine whether damage is compensable or not. Hence, Dutch law leaves much leeway to the courts to cater for the specific needs of the case at hand.

(d) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

39 To determine the amount of compensation in pure economic loss cases, the courts are inclined to calculate the *real* costs incurred and the *plausible* drop in profits. In the so-called 'cable case' the Supreme Court decided that the claimant had to prove the extent of his damage by proving the actual and irreversible drop in turnover.[7] The claimant could not claim the profit he usually made on the production over the five hours he was cut off from energy supplies, but he had to show that the interruption was not redressed afterwards (e.g., by working overtime).

[7] See HR 18 4 1986, NJ 1986, no. 567. For further details, see, e.g., *W.H. van Boom*, Pure economic loss in the Netherlands the case study, in: *M. Bussani/V. Palmer* (eds.), Pure Economic Loss in Europe (2003) 171 522 with further references.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

In principle, compensation is *in full*. Reduction of the amount can be based on the contributory negligence of the claimant (art. 6:101 Civil Code).[8] 40

Apart from contributory negligence, there are two ways to limit the statutory obligation to pay damage compensation. First, there is art. 6:109 Civil Code. Art. 6:109 BW reads: 41

1. The judge may reduce the obligation to repair damage if awarding full reparation would lead to clearly unacceptable results in the given circumstances, including the nature of the liability, the legal relationship between the parties, and their respective financial capacities.
2. The reduction may not exceed the amount for which the debtor has covered his liability by insurance or was obliged to maintain such a cover.
3. Any stipulation derogating from paragraph 1 is null and void.

According to art. 6:109 Civil Code the court may reduce the statutory obligation to pay compensation. This discretionary power can be used in the unlikely event that full compensation would lead to a clearly unacceptable outcome. This discretionary power is hardly ever used, but it may be used, e.g. if unabated compensation would render the respondent insolvent. It is assumed that the decision to reduce the amount due is based not only on the concrete financial consequences of full liability, but also on the degree of blameworthiness, the nature of the liability (fault-based or strict liability?), and the possibility of a cascade of claims.[9] 42

Second, maximum liability amounts (ceilings, caps) can be set by legislation (art. 6:110 Civil Code). This is done to avoid the situation when the damage compensation exceeds the amount that can be covered by insurance. There is no legislation imposing a limitation with regard to GMO liability. Hence, in a given case only the court can reduce the amount of compensation in accordance with art. 6:109 Civil Code. 43

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

There is no general or specific statutory duty on 'operators' to take out liability insurance, although specific public law legislation does enable local authorities to oblige some operators to take out some form of insurance or a bank 44

[8] On art. 6:101 Civil Code, see, e.g., *W.H. van Boom*, Contributory Negligence under Dutch Law, in: *U. Magnus/M. Martín-Casals* (eds.), Unification of Tort Law: Contributory Negligence (2004) 129 148.

[9] See *A.S. Hartkamp*, Verbintenissenrecht; deel I De verbintenis in het algemeen [Mr. C. Asser's handleiding tot de beoefening van het Nederlands Burgerlijk recht] (11th ed. 2000) no. 494.

guarantee for clean-up cost related to ultrahazardous activities.[10] In practice, this does not seem to apply to GMO-farmers.

(g) Which procedures apply to obtain redress in such cases?

45 Not applicable.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

46 Not applicable.

II. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

47 No, there are no specific rules concerning the covering of sampling and testing costs. Costs associated with sampling and testing for GMO presence in other products are seen as patrimonial damage, see art 6:96 Civil Code subsection 2 under b. These costs are incurred to assess damage and liability. As a result of this, sampling and testing costs for GMO presence in products are covered by damage compensation. As a condition there must be a causal link between the act and the eventual damage.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

48 According to good Dutch tradition, stakeholders are usually stimulated to solve their problems and reconcile their opposing interests with private agreements (covenants) rather than by lobbying for legislative intervention. In principle, covenants are private law agreements between the parties involved. Recently, the *Convenant Coëxistentie* was signed, on the basis of which some GMO crop tests are currently being performed.

49 Generally speaking, the covenant intends to bring all stakeholders concerned together with the goal of arranging a compensation scheme outside the tort system and based on mutual agreement. The gist of the arrangement – which has not yet been elaborated into concrete rules – is that all parties concerned will try to set up an information and damage mitigating system (including monitoring and mitigation of admixture and nuisance) and that compliance with the voluntary regime should suffice (in other words: compliance should render im-

[10] *Besluit financiële zekerheid milieubeheer*, in: *Staatsblad* 2003 no. 71, based on art. 8.15 *Wet milieubeheer*.

munity from liability). Parties have in principle agreed that some sort of fund should be set up to compensate residual damage. Note that these words have not yet been transposed into action.

Although covenants do not have the status of law, acts or omissions in contravention of covenants may amount to wrongful behaviour if the covenant has been accepted throughout the agricultural industry. In that case the covenant may amount to a standard of behaviour seeming in that part of society (which is relevant for the application of art. 6:162 Civil Code). This strongly depends on the specific facts of the case and the level of compliance within the industry with the covenant.[11] 50

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

Such costs are recoverable under tort law, even if the test does not prove actual GMO presence. In this case although there is no admixture damage, the costs can still be recovered provided that liability of the GMO-farmer is established. For example: a farmer has used some GMO in his crops in breach of a statutory ban, and consequently the GMO crop is suspected of having contaminated other crops of an adjacent farmer. The farmer pays for testing his crop and he claims the cost of these tests from the GMO-farmer. The test reveals that no admixture has occurred and customers have kept on purchasing the products of the claimant. Hence, the farmer does not suffer any damage, but the GMO-farmer is still liable for breach of a statutory provision. If the test proves GMO presence but no admixture the respondent GMO-farmer can be held liable for the expenses incurred in connection with the test. The basis for this claim is art. 6:96 Civil Code: the claimant is to be reimbursed for the reasonable cost of assessing liability and possible damage even if the wrongful act turns out not to have caused damage.[12] 51

III. Cross-border issues

1. Special jurisdictional or conflict of laws rules

No, there are no special jurisdictional or conflict of laws rules in force or planned in the Dutch jurisdiction. 52

2. General rules of jurisdiction and choice of law

This is to be answered according to the general rules for jurisdiction and applicable law in tortious liability. According to the general rules of private international law (notably the Brussels I Regulation art. 1, 2 subsection 1 and art. 59 or 60) and dependant on whether the defendant is a natural person or a 53

[11] See *Notitie Ministerie van Justitie* (supra fn. 5) B56 ff.
[12] See HR 11. 7. 2003, NJ 2005, no. 50.

juristic person, the courts of the country where the respondent has his permanent address usually is competent. As far as the applicable law is concerned, usually the second question can be answered by the *Wet Conflictenrecht On rechtmatige daad* (wrongful act conflicting law-act). According to the general principles of private international law, the *lex loci delicti* will apply.[13]

[13] See, generally, *Wet Conflictenrecht Onrechtmatige daad* (Statute on the private international law aspects of tortious liability) art. 3 subsection 1.

Economic Loss Caused by GMOs in Norway

Bjarte Askeland

I. Special liability or compensation regimes

1. Introduction

As of November 2007 there is no commercial production of genetic modified crops in Norway. Norway, however, already in 1993 enacted a special Act concerning genetic technology, the Norwegian Act on Genetic Technology (*Lov om framstilling og bruk av genmodifiserte organismer, genteknol.* 2 April 1993 no. 38). This Act comprises a number of regulatory provisions designed to safeguard that the production and use of genetically modified organisms is exercised in an ethical manner that is prudent in the light of societal interests. In addition the Act features a general liability clause in its § 23. A translation of the clause reads as follows: 1

> "One who is responsible for an activity under the scope of this statute, is liable without fault when the activity by placing or emitting genetically modified organisms into the environment causes damage, inconvenience or loss. In addition the rules enacted in the Pollution Act (*forurl.*) chapter 8 on liability for pollution applies as far as they are appropriate."

This provision will cover a situation where non-GM crops are contaminated by GM crops. As one can see, there is strict liability for the kind of damage that is described in the questionnaire. The requisites concerning causation and damage are formulated in a simple way, with no special designed rules to meet the special problems connected to GMOs. In accordance with the general method of interpretation in Norwegian law, the mentioned requisites have to be interpreted in the light of general tort law principles. Because of this, the questions in part I of this questionnaire will to a certain extent be answered by reference to the outline of the general tort law regime that is given as an answer to part II of the questionnaire. 2

One should particularly notice the last sentence in the cited statutory provision, which refers to *Forurensingsloven* 13 March 1981 no. 6 (the Norwegian Pollution Act) and makes the rules in this act applicable to GMO cases. In the Pollu- 3

tion Act there is strict liability for the owner of premises or industrial facilities which cause pollution damage (cf. *forurl.* § 56). With regard to GMO cases this basis of liability will be overlapped by − or consumed by − *genteknol.* § 23. But the special regulation of multiple polluters in § 59 will be applicable to GMO cases via the mentioned reference to *forurl.* in *genteknol.* § 23.

4 The rules mentioned above form together a sort of special regulation of the GMO cases. But the rules are not so detailed or especially designed that it would be fair to say that Norwegian law has a special "liability regime" for GMO cases.

5 The liability clause in *genteknol.* § 23 is currently being examined by the Ministry of Environmental Issues with regard to the need for more precise liability rules. As of November 2007 the Ministry has not yet decided whether they want to initiate new statutory provisions at this point. As a consequence of the fact that the cited § 23 makes the provisions in *forurl.* (the Pollution Act) applicable (cf. no. 4 above), also the Ministry of Justice will probably be asked to take a closer look at GMO regulation within the frame of the Pollution Act. As of November 2007 this work has not yet started.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

6 The wording of *genteknol.* § 23 requires that "the activity" (*virksomheten*) causes damage (*volder skade*). This will be interpreted as a reference to the general conditions of causality within tort law. Hence the ordinary criteria of *conditio sine qua non* supplemented with the qualification of a "substantial cause", a sort of adequacy test, would apply.[1]

7 There are no special rules concerning the costs of testing. This question will be governed by the general rules on the subject which is described in no. 48–49 below.

(b) How is the burden of proof distributed?

8 There are no special rules concerning the burden of proof. The different sources of adventitious presence of GMOs are not taken into account. These problems must be solved by the general rules, cf. part II below.

[1] The general conditions of causality are more precisely explained in no. 23 24 below.

(c) How are problems of multiple causes handled by the regime?

As mentioned above, the reference from *genteknol.* § 23 to *forurl.* makes the special rule concerning multiple potential tortfeasors in *forurl.* § 59 applicable to GMO cases. According to this provision it is sufficient for liability that an actor *may* have caused pollution damage. The actor is only exonerated where the actor can prove that he is *not* the cause. Moreover, § 59 reads that two or more actors will be held jointly liable unless they prove that they have not been engaged in an activity that pollutes the environment. This solution is specifically articulated in the preparatory works of the Act. It also follows from an adequate interpretation of § 59 *forurl.*: 9

> "One who causes pollution which alone or together with other harmful causes may have caused the pollution damage, is considered to have caused the damage unless it is proved that another cause is more likely to have caused the damage."

As one can observe, the burden of proof is reversed. While the general rule is that the claimant has to prove that the alleged polluter actually caused the damage, the polluter according to § 59 has to prove that there is no causal connection between his actions and the harm done. This reversal of the burden of proof will be applicable to GMO cases. 10

In general, Norwegian tort law does not recognize potential or uncertain causation. To deem someone liable requires that it is proved beyond 50% certainty that the alleged tortfeasor has caused the harm. The wording in *forurl.* represents, however, a rare modification in this respect. As cited in no. 9 above, the rule states that an actor that *may* have polluted has to prove his innocence. In practical life it may be very difficult to prove that one has not caused the damage, and this difficulty is particularly evident when it comes to GMO-contamination. Because of this, the rule in *forurl.* § 59 (cf. *genteknol.* § 23) may be looked upon as a rule that states liability for potential causation. 11

By the wording "*[d]en som er ansvarlig for virksomheten …*" ("the one who is responsible for the activity"), the liability is channelled to the owner of the GM-crop or/and the person who runs the activity of farming. At this point *gen teknol.* § 23 (because of the link between the acts mentioned in no. 4 above) is likely to be supplemented by *forurl.* § 56 second sentence. *Forurl.* § 56 is a strict liability clause that applies to pollution damage. The second sentence of the paragraph states that the one who "in fact runs" (*faktisk driver*) the polluting activity is liable. 12

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

13 As mentioned in no. 1, the Norwegian solution with regard to GMOs is not a fault-based regime.

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

14 With the way that the liability clause is formulated, there are no defences available to the actor.

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

15 No compensation mechanism is yet designed.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

16 There is no such differentiation within the current regulations.

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

17 Within the Norwegian procedural system of civil litigation, one is free to base a claim on any material legal basis one may choose. Hence one is entitled to claim compensation based on general tort law simultaneously. The judge, however, has the competence to decide which rules he or she will apply in the case at hand. In this respect the judge is likely to choose the special rule in *genteknol.* § 23 on account of the principle of *lex specialis*.

18 One is, however, barred from *subsequently* bringing a lawsuit on the basis of general tort law rules due to the Norwegian rules on litigation, namely the rule of claim preclusion (*litispendence*).[2] A claim based on general tort law will probably in the context of civil litigation be regarded as the same claim as a claim based on *genteknol.* § 23, therefore the rules of claim preclusion (*litispendence*) will apply.

4. Damage and remedies

19 By the word *skade*, which means "damage", the provision refers to the general tort law concept of damage under Norwegian law. The scope of this concept is

[2] Cf. *Tvistemålsloven* 13 August 1915 (The Norwegian Act on Litigation, tvistel.) § 163, 1 January 2008 onwards: *Tvisteloven* 17 June 2005 no. 90 § 9 15 (3).

described in part II below. In the special liability clause in § 23 pure economic loss is not given any special treatment, and one therefore has to lean on the general regulation of such damage described in part II below.

5. Compensation funds

Currently no compensation funds are planned. 20

6. Comparison to other specific liability or compensation regimes

The strict liability rule described above is quite comparable to other liability regimes under Norwegian law. Both product liability and environmental liability are based on rules of strict liability or close to strict liability.[3] The strict liability rule in *genteknol.* § 23 fits very well into the broader system of liability for acts that endanger the environment, cf. the strict liability rule in *forurl.* § 55. 21

II. General liability or other compensation schemes

1. Introduction

The general liability rules would apply. The GMO-contamination of the initially non-GMO crop would be regarded as a damage to the crop. The compensation would reflect the loss of value stemming from the change from non-GMO crop to GMO crop. 22

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

The ordinary criteria of *conditio sine qua non* supplemented with the qualification of a substantial cause would apply. Thus, Norway has, like many other countries, adopted a bifurcated approach to the question of causation. The first step is a logical one, usually depending on the "but for" test. In Norway one has traditionally built upon the theories of John Stuart Mill, which especially were introduced into Norwegian tort law by the influential writer F. Stang.[4] In Norway this means that there is a broad consensus that one should use the theory of equivalence as a starting point when analyzing the causal requirements. 23

The second criterion of qualification is a normative one, putting weight on how dominating the tortfeasor's act is compared to other causal factors. One should note that the tortfeasor's contribution to the damage does not have to be the overall dominating factor as compared to all causal factors. It is sufficient 24

[3] Cf. *Produktansvarsloven* 23 December 1988 no. 104 (Product Liability Act, pal.) § 2 1 and *forurl.* § 55.

[4] *F. Stang*, Erstatningsansvar (1919) 65 68.

that the factor is "so substantial that one naturally could attach liability to the factor", Rt. 1992, 64 ff., 70. This second criteria is not quite the same as the adequacy test. Only when the two mentioned criteria are met, does one move on to the question of adequate causation.

(b) How is the burden of proof distributed?

25 At the outset the ordinary principle that the claimant must prove that he has been exposed to harm by the defendant will apply. But according to Norwegian Supreme Court practice, the judge within certain limits has the competence to shift the burden of proof on a discretionary basis.[5] The fact that (1) the neighbour uses GM crops and (2) that the claimant has got GM-contamination in his crop *may* be sufficient for the judges to reverse the burden of proof so that the neighbouring GM crop holder must prove that the contamination was *not* caused by him. But whether or not the judges will use their competence in this manner is not easy to tell in advance.

(c) How are problems of multiple causes handled by the general regime?

26 When it comes to *alternative* causes the traditional view has been that one can not state liability without sufficient proof that the defendant actually was the cause of the harm.[6] A citizen can in other words not be deemed liable unless it is proved that it is more probable than not that he is the cause of the damage. This will in fact lead to non-liability where two alternative factors are both likely to have caused the harm. This question has traditionally been elaborated in the light of a text-book example: Two persons independently of one another push a rock from a cliff down to a deep valley. Later it is discovered that a grazing horse is killed by a rock, but it is not possible to establish which of the possible tortfeasors in fact pushed the rock. F. Stang maintains that none of the possible tortfeasors can be liable in such a case.[7] H. Hartmann holds on the other hand that both of them must be liable *in solidum*.[8] Also N. Nygaard is sympathetic to this solution.[9]

27 In an article published in 2005, A. Stenvik, inspired by the solution in PEPL art. 4:103, has challenged the traditional view. The author holds that Norway should embark on the solution suggested in PEPL 4:103; rebuttable solidary liability.[10]

28 Apart from this the special rule in the Norwegian Act on Pollution *forurl.* § 59 will apply, see no. 9–12 above, where the rule is also cited.

[5] Cf. *N. Nygaard*, Skade og ansvar (6th. ed. 2007) 341 f.
[6] *F. Stang*, Skade voldt av flere (1918) 61 66.
[7] *F. Stang* (fn. 6) 67 68.
[8] *H. Hartmann*, Bevismangel som ansvarsgrunn, TfR (*Tidsskrift for Rettsvitenskap*, "Periodical on legal science")1950, 232 241, 239.
[9] *N. Nygaard* (fn. 5) 346.
[10] *A. Stenvik*, Erstatningsrettens internasjonalisering (The Internationalizing of Tort Law), TfE (*Tidsskrift for Erstatningsrett*, "Periodical on tort law") 2005, 33 61.

As mentioned above, in general Norwegian tort law does not recognize potential or uncertain causation. To deem someone liable requires that it is proved beyond 50% certainty that the alleged tortfeasor has caused the harm. As explained in no. 11 above, the wording in *forurl.* § 59, however, represents a modification in this respect. 29

Where there is some kind of cooperation or common enterprise involved in the interaction between the polluters or other harming actors, they will quite easily be deemed as acting together with the consequence of joint and several liability. A more precise threshold of required cooperation is hard to describe in general terms. This is a rule based on very scarce court practice. 30

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

Fault-based liability comprises parameters that very much resemble the Learned Hand formula. One has to evaluate the quality of the risk and compare it to the burdens of avoiding the risk. The burden of proof is governed by the same regime that is presented in no. 25 above. If there are established statutory rules for a certain area of life, this will in general make a great difference. The interpretation of the rule of culpa under Norwegian tort law has traditionally to a large extent leaned on statutory or administrative provisions that state how the defendant should act or perform.[11] Hence one would have put great weight on statutory rules defining the required conduct for GMO agriculture. 31

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

The Norwegian general rule on strict liability applies when one can establish that there has been a "continuous", "typical" and "extraordinary" risk that has resulted in the harm. This rule was developed as a consequence of the industrial revolution in the second half of the 19th century. It was initially related to dangerous factories but has in time been expanded to a great variety of risk sources such as cars, elevators and defective drugs. This basis of liability may very well come into play in connection with GMO-damage. This is, however, not very likely as long as there is a special liability clause in *genteknol.* § 23. 32

Hence it is far more likely that the statutory basis of strict liability in *genteknol.* § 23 and perhaps also *forurl.* § 55 will apply. The requisites of these rules are simply that the activity of GMO farming has caused the damage. 33

[11] *N. Nygaard* (fn. 5) 202 ff.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

34 In Norway an Act which governs the relationship between neighbours, *gran neloven* (the Neighbour Act, *grannel.*) has been enacted.[12] This Act is comprised of liability rules for emissions from one property to another and other forms of impact which the activity on one piece of land has on neighbouring land. The main requisite is formulated quite broadly, cf. *grannel.* § 2:

> "No one must have, do or initiate something that unreasonably or unnecessarily constitutes harm or nuisance to neighbouring land."

35 Based on practice and general theoretical opinion this rule will probably apply to cases of the kind covered by this study.

4. Damage and remedies

(a) How is damage defined and measured?

36 Damage is in general divided into three categories; damage to persons, things and pure economic loss.[13] The GMO-contamination of the non-GM crops may very well be looked upon as a kind of damage to the non-GM crop. Any alteration of a thing in a negative direction in terms of economic value will qualify as damage. As long as the crop is produced for sale, one will presumably look to the market value of the damaged goods.[14] The measuring of the damage (the assessment) will simply be done by subtracting the value of the GMO-contaminated crop from the stipulated value of a non-GM crop. When applying this approach there will not really be a question of pure economic loss.

37 Pure economic loss is in general considered to be a head of damage that has a particularly weak standing.[15] This kind of damage will not always be regarded as relevant to tort law compensation. The question of compensation will depend on the concrete merits of the case. There are, however, many examples within Norwegian tort law practice where claims of pure economic loss have succeeded. One example is the case referred to in Rt. 1955, 1132. A commissioner for "Norsk Tipping" (the national company established to manage betting on soccer games) failed to register a customer's bet, with the consequence that the customer did not win in spite of the fact that he had an all-correct forecast. The commissioner had to pay damages equivalent to the award the customer would have won had the commissioner registered the claimant's forecast.

[12] *Granneloven* 4 December 1961.
[13] Cf. *Skadeserstatningsloven* no. 26/1969 § 3 1 and § 4 1.
[14] *N. Nygaard* (fn. 5) 78 f.
[15] *P. Lødrup*, Lærebok i Erstatningsrett (5th ed. 2005) 53, *V. Hagstrøm* (in cooperation with *M. Aarbakke*), Obligasjonsrett (2003) 450, see also the Supreme Court statement in Rt. 1991, 1335, 1342.

One might say that the difference between pure economic loss and other kinds of damage is that pure economic loss has to pass a normative qualification which is unnecessary when it comes to damage to things or personal injuries.[16] 38

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

This is regarded as pure economic loss. The question will be whether or not this kind of negative effect is within the scope of the requisite of *skade* (damage) according to *genteknol.* § 23. The methodical approach is in this respect, to interpret the special rule in § 23 in the light of the general concept of damage within Norwegian tort law. 39

In this case the damage is pure economic loss due to possible customers' unfounded fear of GMO existence. As mentioned above, pure economic loss in general has a weak standing. However, if the mentioned wrong belief were caused by a malicious campaign from a tortfeasor, the loss might have been compensated. Therefore it is not the nature of the loss in itself that makes it difficult to recognize this kind of claim. The question would rather be whether one would interpret the strict liability rule so widely that it even comprises negative economic effects based on wrong belief. I very much doubt that a judge would have interpreted the scope of the special strict liability rule that widely. But this reductive interpretation of the liability clause would presumably have taken place by applying an adequacy test. The reasoning would then be that there is no adequate causation between the defendant's holding of a GMO crop and the loss that stems from unfounded fears of GMO-contamination on the crop for sale. 40

(c) Where does your legal system draw the line between compensable and non compensable losses?

In general one would not regard the loss of the uncontaminated farmers as compensable. As suggested above, in the Norwegian tort law regime there is some room for normative qualifications under the requisite of adequacy. One would probably not regard a causal connection that comprises unfounded fear as adequate. 41

(d) What are the criteria for determining the amount of compensation in general?

The measuring of the damage (the assessment) will probably be guided by "the principle of difference": Through compensation the claimant shall obtain the same economic situation as he found himself in before the damage occurred. 42

[16] See Rt. 2007, 475.

The application of this principle will simply be done by subtracting the value of the GMO-contaminated crop from the stipulated value of a non-GM crop. Under Norwegian law there is a long tradition of leaving a margin of discretion to judges when it comes to the assessment of damages. Hence judges will have the possibility to stipulate a reasonable award based on rough presuppositions regarding the amount of crops and their value.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

43 In principle there is no financial limit to liability. Once liability is established the general reduction clause in *Skadeserstatningsloven* (Compensation for Damage Act, *skl.*) § 5-2 may, however, come into play. If the liability is "unreasonably burdening" to the defendant, the award may be reduced to a managable level. The question of if and how much the award should be reduced depends on the defendant's financial position, the gravity of the tortious act and "other circumstances".

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

44 There is currently no general duty to obtain liability insurance.

(g) Which procedures apply to obtain redress in such cases?

45 If there is liability insurance (bought on a voluntary basis), the claimant has the right to claim compensation from (or sue) the liability insurer directly, cf. *Forsikringsavtaleloven* 16 June 1989 no. 69 (Insurance Contract Act) § 7-6.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

46 No general compensation schemes are applicable in such cases.

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

47 There are currently no specific rules which cover costs associated with sampling and testing for GMO presence. Neither are there any rules covering general monitoring.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply (and if so, who would have to bear these costs)?

To my knowledge there are no industry-based rules. The general tort law rules will, however, apply. It is in tort law practice common to regard sampling and testing costs related to confirm that damage has occurred as relevant expenses within the concept of damage.[17] 48

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

The general rules are only applicable where the tests are positive so that the occurrence of damage is confirmed. Damage is only recoverable provided that the defendant is deemed liable. Hence the general rule will not cover expenses relating to the mere monitoring of the crop. 49

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no special jurisdictional or conflict of law rules in force or planned, except for a general rule concerning damage covered by *forurl.*, namely *forurl.* § 54. This provision states that *forurl.* applies to pollution damage that occurs on Norwegian territory, *forurl.* § 54 first paragraph litra a. Moreover, it may apply to pollution damage outside Norway provided that the activity that causes the damage has taken place in Norway. The claimant is entitled to claim that the question of compensation shall be decided in the country where the polluting activity took place, cf. *forurl.* § 54, fourth paragraph. Because of the link between *genteknol.* § 23 and *forurl.* mentioned in no. 4, the said provisions will apply to GMO cases. 50

In addition there is relevant regulation within the Nordic Convention on the Protection of the Environment.[18] This Convention has been incorporated into Norwegian law by *Lov om gjennomføring i norsk rett av miljøvernkonvensjon mellom Norge, Danmark og Sverige, undertegnet 19. februar 1974* (the Act on the Implementation of the Nordic Convention between Norway, Denmark, Sweden and Finland, signed 19 February 1974), an Act of 9 April 1976 no. 21. Article 3 in the said Convention reads that a claimant that has been exposed to pollution damage in his own country has the right to sue or apply administrative remedies against the tortfeasor in the country where the polluting activity took place. The claimant is entitled to a compensation regime that is as much to his advantage as the compensation regime in the country where the polluting activity took place. 51

[17] *N. Nygaard* (fn. 5) 84.

[18] Convention 19 February 1974 (*Miljøvernkonvensjon mellom Danmark, Finland, Norge og Sverige* av 19 februar 1974).

52 Except for the general principle of *lex loci delicti* there is no other specific provisions designed for cross-border cases. *Lex loci delicti* provides, however, obviously not any good answers for cross-border cases because it is doubtful whether *lex loci delicti* is the place where the damaging activity took place (*lex loci actus*) or where the damage occurred (*lex loci injuriae*).

2. General rules of jurisdiction and choice of law

53 When it comes to rules of jurisdiction, *tvistel.* § 29 reads that a lawsuit can be filed where the direct effect of the damaging activity has occurred. This would lead to the solution that GMO-contamination that stems from other countries may be the cause of a lawsuit for Norwegian courts. The mentioned rule is however modified by case law, which has constituted a principle that says that the damaging act must have a certain degree of connection to Norway. This principle was particularly important in the case referred to in Rt. 1998, 1647. This case concerned an airplane accident in Svalbard (Spitzbergen). The accident had no connection to Norway other than the fact that the plane fell down on Norwegian territory. The passengers were foreigners and so was the company who owned the aircraft. Hence the claimants were not allowed to file a lawsuit in Norway.[19]

54 With regard to choice of law Norwegian international private law has been open to different solutions in cross-border cases.[20] Hence it is uncertain whether *lex loci actus* or *lex loci injuriae* would prevail. The general opinion among theorists within Norwegian international private law, however, seems, to be that the rules of the country where the damage occurs (*lex loci injuriae*) apply.[21]

55 On a practical level the claimant most often will have the opportunity of *lex loci actus* according to the Nordic Convention on the Protection of the Environment mentioned in no. 51 above. This goes for cross-border cases involving Sweden, Finland and (less practically) Denmark. Norway, however, also borders Russia, and for cross-border cases in this area the Convention will not apply. Consequently cases involving Russia probably will be solved by applying the *lex loci injuriae* principle, cf. no. 54 above.[22]

[19] See *B. Konow*, Erstatningsverneting i saker utenfor kontraktsforhold, Nybrott og odling, Fest skrift for Nils Nygaard (2002) 181, 184 186.

[20] *H. Thue*, Internasjonal obligasjonsrett, Erstatning utenfor kontraktsforhold, Institutt for priva tretts stensilserie no. 111, 25 26.

[21] *H. Thue* (fn. 20) 28 29, *I. Alvik*, Lovvalg og jurisdiksjon for ikke kontraktuelle erstatningskrav, JV (Jussens venner, "Friends of the Law", Norwegian periodical) 2005, 281 304, 298 300 maintains that reasonableness and the question of which country has the closest connection to the factual incident may be decisive.

[22] The same goes for Iceland, who is not a party to the mentioned Nordic convention. Cross border cases involving Iceland are, however, not practical.

Economic Loss Caused by GMOs in Poland

Ewa Bagińska

I. Special liability or compensation regimes

1. Introduction

In the Law of 22 June 2001 on Genetically Modified Organisms (consolidated text published in the Journal of Laws of 2007, no 36, item 233) there is a special provision of art. 57 (Chapter 7 of the Law) addressing the civil liability of GMO users. 1

According to art. 57 section 1 a GMO "user" is liable according to civil law for damage to persons, damage to property and damage to the environment caused by the carrying out of a contained use of GMOs or of a deliberate release of GMOs into the environment, including the placing of GMOs on the market. 2

The liability is strict, i.e. it is based on the principle of risk. There are three exonerations from this liability: (1) *force majeure* (*vis maior*), (2) the exclusive fault of the injured, (3) the exclusive fault of a third person for whom the GMO user is not liable. The fact that the activity that caused damage was carried out on the basis of and within the scope of an administrative decision does not exempt the user from the liability envisaged in art. 57 section 1 of the Law (art. 57 section 3 of the Law). 3

In the case of environmental damage the claim for compensation may be brought by the State Treasury, a local authority or an ecological organization (art. 57 section 2 of the Law). 4

The same rules of liability apply accordingly to the transit of GMO products through the territory of Poland. The liability is imposed on the person obliged to obtain a licence according to art. 51 of the Law. 5

The liability is linked with all activities involving the production or release of GMOs. Thus, art. 57 section 1 does not exclude any risks posed by the GMOs that have been released into the environment. At present, it also covers the risks described in the introduction to this questionnaire. 6

7 There is a draft bill aiming to replace the Act of 2001 with a new law on GMOs. It slightly changes the provisions on liability for damage, although it does not change the principle of risk as the basis of the claim. According to art. 189 of the draft a "user" (any person who undertakes any GMO activity regulated by the law, also a farmer) is liable according to civil law for damage to person, damage to property and damage to the environment caused by a contained use, a deliberate release or placing on the market of a GMO as a product or in a product and by a cultivation of GMO crops, unless the damage is attributed to *force majeure* (*vis maior*), the exclusive fault of the injured or the exclusive fault of a third person for whom the user is not liable.

8 The draft act provides that in the case of damage to the environment the claim for compensation may be brought by the State Treasury or a local authority. However, in this case any awarded compensation is to be transferred for the benefit of the National Fund of Environmental Protection and Water Management.

9 In comparison to the current law the bill explicitly covers the risks described in the introduction to this questionnaire, hence damage stemming from the cultivation of GMO crops.

10 In addition, art. 189 section 3 of the draft act introduces joint and several liability of users whose conduct/activity caused the damage.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

11 There are no special rules in the Law on GMOs that would change the applicability of the general test of causation.

12 In the field of liability for damage Polish law generally accepts the theory of adequate causal link. Art. 361 § 1 civil code provides that a person obliged to pay damages is liable only for the normal consequences of the action or omission from which the damage resulted. In some cases proof of high probability of the causal connection between the fact and the inflicted loss will suffice.

13 The said provision does not introduce a (legal) causal link that would be different from that existing in reality. The law, however, links liability only with the ordinary consequences of phenomena that make up its basis. First of all, there must be a *conditio sine qua non* relation between the cause and its result. However, the tortfeasor is not responsible for all consequences of his action (inaction), but only for those which can be assessed as ordinary (normal). The courts thus examine whether a given fact, which is presented as the alleged

cause of the damage, is its *conditio sine qua non*. If the answer is affirmative, the courts will then consider whether the given result is a normal consequence of the phenomenon that led to the damage.

It is believed that adequate causation may be both direct and indirect. Thus, there is a causal link between damage and an event if the event indirectly created the favourable conditions or facilitated another event or a chain of events, the last of which became the direct cause of the damage. Thus, in the case of indirect causation there is a causal dependency between the parts of the multi-element chain and each part separately is subject to the causality test[1]. 14

The criterion of adequacy (normality) is subject to different interpretations. According to the view prevailing in the doctrine and case law a "normal consequence" of a fact means one which typically occurs in the regular course of events; it is not required that it would always happen. The Supreme Court has explained the category of "normal consequences" in several judgments, using the objective criteria that flow from life experience and science[2]. With some exceptional cases the case law rejects the subjective factor of foreseeability of consequences, because predictability is considered a category of fault and not of causality. 15

In the cases covered by this study, due to the lack of experience in cultivation of GMO crops in Poland, the courts will have to, at least initially, rely on scientific data. Geographical conditions, such as the distance between the crops, as well as the type of seed are examples of objective criteria that should also be taken into account when establishing adequate causation. 16

(b) How is the burden of proof distributed?

The general provisions of civil law on the burden of proof apply. The rule of art. 6 civil code imposes the burden of proving causation on the injured person ("The burden of proof relating to a fact rests on the person who attributes legal consequences to that fact".) 17

There is no formal reversal of the burden of proof in the discussed regime. There are, however, some special rules which relate to the means of proving causation. According to art. 57 section 5 of the GMO Law anyone who is entitled to claim damages based on this regime and has filed a court action may demand that the court oblige the person whose activity is the source of the claim to discharge information necessary to establish the scope of this person's liability. The cost of the preparation of such information is borne by the defendant unless the action has been shown to be frivolous. This rule is deleted in the planned Law on GMOs. 18

[1] The Supreme Court [SN] 10 December 1952, C 584/52, *Paristwo i Prawo* 1953/8 9, 366, SN 21 June 1960, 1 CR 592/59, Decisions of the Supreme Court [OSN] 1962/III, at 84.

[2] SN 2 June 1956, 3 CR 515/56, OSN1957/1, at 24, SN 7 June 2001, III CKN 1536/00, LEX DATABASE 52595, SN 14 March 2002, IV CKN 826/00, LEX DATABASE 74400.

19 In the studied cases, presumptions of facts may be used in order to establish the causal link between the consequences of the presence of GMOs in non-GMO crops. We may also find some further directions in the case law. The Supreme Court[3] held that the causal link between a certain disease of the victim and the operation of an industrial enterprise which emits harmful substances (in this case, liability is based on risk) should be considered to be established as soon as it is proven that the victim was *exposed* to the damaging pollution released by such an enterprise if his disease may be a normal consequence thereof. The Court held that the law imposes the obligation to measure the density of polluting gases on the enterprises which emit such gases, because such measurements are complicated, costly and time-consuming. Thus, the defendant enterprise should bear the burden of proving that the harmful dust it had discharged had no impact on the damage suffered by the plaintiff.

20 The user is strictly liable, regardless of whether he met his statutory duties linked with transport, storage or out-crossing with neighbouring crops.

(c) How are problems of multiple causes handled by the regime?

21 The Law channels the liability to the user of GMOs.

22 There are no special rules on alternative, potential or uncertain causation in the Law. The general rule of art. 361 § 1 civil code (hence – the adequate causation test) will apply as the civil code contains no special rules on alternative, potential or uncertain causation, either.

23 There are no special rules in the Law on GMOs that would change the applicability of the general rules of the civil law governing joint and several liability of multiple tortfeasors. No collective liability is foreseen in the regime, and nor is there any rule on recourse between the persons liable.

24 However, art. 189 section 3 of the draft act introduces joint and several liability of users whose conduct/activity caused the damage. No further conditions – other than causation – apply. No recourse rules are provided, either. Thus, the general rules on joint and several obligations and of joint and several liability *ex delicto* will apply accordingly.

25 On the general regime of joint and several liability see below II.2(c).

[3] SN 6 October 1976, IV CR 380/76, OSN 1977/5 6, at 93.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

The liability is strict, i.e. it is based on the principle of risk. There are three exonerations from this liability: (1) *force majeure* (*vis maior*), (2) the exclusive fault of the injured, (3) the exclusive fault of a third person for whom the GMO user is not liable. 26

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

Under both current law and draft law the same criteria apply to both crop production and seed production. 27

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

The liability regime is placed outside the civil code, but there is no obstacle to basing the claims on general tort law. However, the Law on GMOs provides for a more favourable basis of the liability than the general fault liability (art. 415 civil code). 28

Currently, the regime overlaps with special rules of liability for environmental damage contained in the Environmental Protection Law of 2001 (see infra no. 6 for more details). However, a draft act on prevention and remedying of environmental damage, implementing Directive 2004/35 of 21 April 2004, aims to create coherence between the two systems. This new act would add to the Law on GMOs a referral to the provisions of the draft law with respect to the prevention and reparation of damage to the environment caused by a contained use of GMOs or by a deliberate release of GMOs into the environment. 29

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

There is no definition of damage in the Law on GMOs, hence the general rules of civil law apply. In particular, art. 57 of the Law refers to the liability "as provided by civil law". 30

31 There is no legal definition of damage in the civil code. Traditionally, it is considered as every wrong upon an interest protected by law, be it property or personality interests. The notion of property damage is determined in the case law. Both case law and doctrine accept the theory of difference. Hence, the damage to property makes up the difference between the present property standing of the injured party and the standing which would have existed if the event causing the damage had not occurred.

32 Thus, all kinds of damage: to person and to property, pecuniary and non-pecuniary must be compensated. Damages comprise both losses – *damnum emer gens* and lost profits – *lucrum cessans*. Full compensation is the principle. This also means that the amount of damages may not exceed the scope of damage or enrich the injured party. The adequate causation test (art. 361 § 1 civil code) relates to both types of damage. When dealing with claims for the loss of earnings or other material benefits Polish courts qualify them as belonging to the category of *lucrum cessans*. Two elements must be compared: a hypothetical situation in which the injured would have got a certain material profit with an actual situation where gaining the profit is unfeasible. Gaining *lucrum cessans* (profit) must be objectively feasible and real. It should be established that the injured lost a profit which was to be obtained with certainty or at least with a high degree of probability.

33 In Polish law *pure economic loss* is not compensated, unless it falls within the category of lost profits. The proof of high probability of lost income is required, as well as a normal causal relation between the tort and the scope of the economic loss claimed by the plaintiff.

34 In the case of *personal injury* the redress of damage covers pecuniary and non-pecuniary damage. The first one includes all resulting costs, like medical expenses, or if the victim lost his ability to work, an appropriate annuity, even a temporary one if at the time of the delivery of the judgment the damage cannot be accurately assessed. Moreover, persons related to the deceased, who are indirectly injured by his death may demand an annuity or a single-payment indemnity (art. 446 § 2 i § 3 civil code). Their claims are independent of any rights of the directly injured and of his received compensation for pecuniary and non-pecuniary loss (art. 444 and 445 civil code).

35 The principle of *compensatio lucri cum damno* is applied in a traditional way, i.e. the deduction may occur only with respect to the gains flowing from the same event. Moreover, gains obtained from the tortfeasor are to be taken into account when determining the amount of damages. In several decisions the Supreme Court has referred to collateral sources such as the relation between damages sought from the tortfeasor and insurance benefits.

36 With respect to the notion of "damage to the environment", account should be taken of the provisions of the Environmental Protection Law. Although the latter does not define "damage to the environment", the general doctrinal view

is rather coherent with the draft law on prevention and reparation of environmental damage, implementing Directive 2004/35 of 21 April 2004 (where such a definition exists). The reparation of damage to the environment is regulated in the environmental law. About the remedies and scope of damages – see section 6 below. Damages will in general comprise the costs of prevention and restitution.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

Lacking any special rules, the question should be answered according to the general civil liability rules. 37

In Polish law the general criterion in assessing damages is an adequate causal relation between a tort and damage. Art. 361 § 2 civil code stipulates that within the limits of a normal causal link, in the absence of contrary provisions of the contract or law, redressing of the damage includes losses which the injured incurred and profits which he could have gained if the damage had not occurred. This is particularly important in determining damages in the case of indirect causation. 38

Hence, proof of actual damage or of a high probability of the loss of profits resulting therefrom is required. Usually, the loss of expected profits is more difficult to evaluate because here a hypothetical situation must be taken into consideration. The plaintiff must show that the loss of profits has actually occurred. Subjective expectations and hopes of the plaintiff will not meet with this requirement. 39

Whether pure fear of admixture or only actual admixture and the loss of a farmer meet the adequate causation test is for the courts to decide. 40

(c) Where does the scheme draw the line between compensable and non compensable losses?

There is no special provision in the regime of liability for GMOs regarding this issue. 41

In general, it is accepted that compensable is the damage inflicted by the direct victim. By way of exception indirect victims in personal injury cases are entitled to their own claims for compensation. In cases of economic damage, only those persons towards whom the conduct of the tortfeasor was directed are considered the injured persons. In other words, the conduct of the tortfeasor must violate someone's subjective right. 42

The subjective right doctrine does not operate in the case of damage to the environment, since it is not yet accepted whether there is a subjective right to the 43

environment. Hence the environment is protected as a common good. For what damage is compensable in this case, one should look to the environmental law and the draft law on prevention and reparation of damage to natural environment, implementing Directive 2004/35.

44 *Prejudice eventuel* (loss of chance) is not compensable in the case of property damage and is compensable in the case of damage to persons, provided the probability of the loss is not negligible and may be established.

45 All the farmers in a given region have a clear pecuniary interest in the commercial value of their crops. They suffer loss if the price of their crops has dropped because of the fear of consumers relating to the spread of GMOs in the whole region. The loss might also stem from the test undertaken to reaffirm that the crops in question have not been contaminated. Here again, adequate causation plays a role in the determination of damages.

(d) What are the criteria for determining the amount of compensation?

46 No specific criteria apply in the determination of the farmers' damages.

47 The general rule codified in art. 363 § 2 civil code provides as follows: "If the redress of damage is to be in money, the amount of the indemnity shall be fixed in accordance with the prices on the day on which the indemnity is fixed, unless extraordinary circumstances require that prices existing at a different moment be taken as the basis." Hence, damages are to be determined as of the assessment date, which is strictly speaking the date of judgment. By way of exception a different date is taken as a basis. This rule is intended to give the injured party full compensation in situations where his injury becomes worse as a result of the passage of time during the period prior to judgment. As the Polish Supreme Court wrote in its judgment of 13 September 1989 (III PZP 44/89, OSNC 9/1990, item 109): "The assessment of damages according to the prices existing on the date of adjudication has great importance in a situation where the change of prices occurred between the day of the infliction of the damage and the issuing of the award … Taking into account prices other than those existing on the date of adjudication happens only in exceptional cases and provided that it is justified by extraordinary circumstances."

48 The "extraordinary circumstances" that are required to depart from the normal rule are those where using the date of adjudication would not result in full compensation to the injured party, or where the injured party would receive an unjust enrichment. An example of the type of "extraordinary circumstances" that would justify departure from the ordinary rule would be where damages are claimed for loss of crops in a particular year, which are normally sold after harvest in a ready and available market for a price that is known and accepted; in such a case, the date of expected sale is used, rather than the date of adjudication, because in such circumstances it is clear that the plaintiff would not

have remained in possession of the crops to and until the date of adjudication but would have sold them for a verifiable price[4].

In my opinion only the depreciation of the non-GMO product would be compensated (if the product is marketed and sold). The court will base its judgment on objective criteria (provided most probably in an expert opinion). Any indirect costs, such as increased overhead costs due to the need to find a new market for products, will be compensated as long as they remain in an adequate causal relation. 49

When awarding damages for harm arising from a tort, a court has freedom to determine the amount of damages. By virtue of art. 322 civil procedure code "If in the case of a claim for damages […] a court shall deem that it is not possible or extremely difficult to prove accurately the amount of the claim, the court may adjudicate a relevant amount of money in accordance with its evaluation, based on the consideration of all circumstances of the case." 50

(e) Is there a financial limit to liability?

There is no financial limit to liability. 51

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

According to art. 25–30 and 36 of the Law on GMOs a decision allowing for the release of GMOs may establish a security to cover claims arising from potential losses, in particular in the case where a significant public interest related to the protection of health or the environment, and especially to the risk where deterioration of the environment calls for such security. The form and scope of such security is determined by the licensing organ in the decision. The security may be provided in the form of a deposit on a special banking account set up by the licensing organ, a bank guarantee or insurance policy. 52

No specific criteria are prescribed by the law with respect to the scope of the security in the relation to the particular risk of cultivation of GMOs. Hence, the minister for the environment enjoys a wide margin of discretion. 53

(g) Which procedures apply to obtain redress?

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

Generally, in order to obtain redress for damage to persons or property a regular lawsuit must be filed in the court of common jurisdiction. 54

[4] SN 24 January 1983, OSN 1983, at 123.

55 A possibility to obtain injunctive relief is governed by the provisions of the civil procedure code.

56 There is, however, a specific administrative remedy provided for in the Law on GMOs. The above mentioned (point (f)) bank guarantee or insurance policy should contain a clause to the effect that in the case of a negative outcome in the environment caused by the non-fulfillment of duties imposed in the licence for a GMO activity, the bank or insurer will cover the execution of the obligations for the benefit of the licensing organ. The minister for the environment may decide to use the necessary part of the security to cover the expenses of eliminating the negative effects in the environment caused through the licensed activity in the case where such effects have not been eliminated in the prescribed time. The said rules presuppose that the security is used after the admixture has happened.

57 According to art. 28 of the Law on GMOs the minister for the environment revokes the security if the licence expires or is withdrawn and the negative effects in the environment caused through the licensed activity have been eliminated.

58 The above procedure is also used in the case of insolvency or liquidation of a GMO user.

59 The draft law on GMOs does not provide for a specific security in the case of the cultivation of GMO crops.

60 According to the draft law a regional inspector for environmental protection may impose certain duties and orders on the user who cultivates GMOs in violation of the law. In particular, the inspector may order the user, at his expense, to employ certain field activities, to destroy the crops, to undertake constant monitoring of crops in order to discover the presence of GMOs among the non-GMO crops and to inform the inspector of such presence. The inspector may determine that his decision is immediately enforceable. Considering a possible reduction of the chance of GMOs spreading onto non-GMO crops, he may also issue a cease and desist order regarding the cultivation of certain crops or seeds on a given territory.

5. Compensation funds

61 –

6. Comparison to other specific liability or compensation regimes

62 Beside the Law on GMOs, the channelling of liability is to be found in the Polish Atomic Law. According to Title 12 (art. 100–108) Polish Atomic Law, Act of 29 November 2000 (Dz. U. 2001, no. 2 at 18 with amendments) a nuclear operator (e.g. of nuclear reactor) is exclusively liable for nuclear damage caused

by a nuclear accident within a nuclear device or caused in connection with a nuclear device, unless the damage resulted directly from acts of war (art. 101 subs. 1). During the transportation of a nuclear material, the liability is borne by the operator who dispatched the material, unless the contract with the consignee stipulates otherwise (art. 101 subs. 2). This liability is almost absolute. Therefore, a nuclear operator must provide compulsory liability insurance. The financial limit to this liability is SDR 150 million. If claims exceed the limit, a special fund must be created. The establishment and distribution of the fund is carried out pursuant to the rules of the Maritime Code relating to the limitation of liability for maritime claims. In addition, the State covers the compensation for damage to persons above the sum guaranteed in the insurance policy.

63 The Environmental Protection Law (2001), in art. 322–328, provides for special rules of liability for environmental damage. The rules in the civil code apply unless the statute stipulates otherwise. With the exception of the sea, the environment (air, water, soil, forest) is protected by general tort provisions of art. 435 civil code and art. 415 civil code. According to art. 324 Environmental Protection Law, if the damage is caused by an enterprise operating at an aggravated or major risk, art. 435 civil code (i.e. strict liability) is applicable even if the enterprise is run without the use of natural forces. The fact that the operation of an enterprise which is detrimental to the environment has its basis in an administrative decision does not constitute a defence to the liability for damage.

64 Art. 323 Environmental Protection Law provides that anyone who is exposed to risk of damage or who incurred damage through another's illegal influence on the environment may demand from the person liable that he restores the lawful state and takes preventive measures, such as through installing safety appliances or machines. Where the preventive action is impossible or unreasonably difficult, the claimant may demand that the actor abstains from the infringement. The State Treasury, a local government or an environmental organization has legal standing if an infringement or exposure to damage relates to the environment as a common value (art. 323 section 2). The plaintiff has a right to ask the court to oblige the defendant to supply all the information necessary to establish the scope of his liability. The person who repaired the damage has a right of indemnity towards the actor who caused it, however it is limited to the reasonable expenses of the restoration of the previous state (art. 326).

65 With regard to product liability, the Polish system is based on the European Directive 374/85, thus providing for strict liability of the producer and importer.

66 Hence, the strict liability of a GMO user fits into a broader system where liability attaches to objects and activities that create certain risk. The following factors are considered to justify strict liability: danger created by an activity (activities of an enterprise set into motion by natural forces, driving a car), benefits coming from such activity (*cuius commodum, eius damnum*), the need to protect victims (particularly in the field of product liability). The Polish Civil

Code and other statutory provisions turn away from the criterion of a formal title of the person liable (such as ownership) and give a decisive value to the actual control (usually by a possessor) over the risk.

67 The channelling of liability to one person, who acts in accordance with terms set in a licence would call for the establishment of a fast and efficient system of compensation, for example a fund or a (compulsory) civil liability insurance, which would help to overcome causation problems. Account should be taken, however, of the fact that that possible economic damage to non-GMOs farmers may not be compared with a possible scope of nuclear damage or maritime damage.

II. General liability or other compensation schemes

1. Introduction

68 The general clause of liability for one's own act is expressed in art. 415 civil code. It provides that "whoever by his fault caused damage to another person shall be obliged to redress it". The duty established under art. 415 is a general duty to refrain from injuring other persons. While liability under that rule remains subject to the principle of adequate causation, there is no requirement that the tortfeasor and the injured party have any specific pre-existing relationship, such as a contractual relationship.

69 In the regime of liability *ex delicto* the legal norms introducing strict liability have priority over fault rules, so there is no problem of concurrence.

70 The possible general basis of strict liability (art. 435 civil code) will find little application to the cases of damage caused by the GMO presence in non-GMO crops (see below 3(b)).

71 Liability based on equity will not apply to the economic damage of non-GMO producers.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

(b) How is the burden of proof distributed?

72 See I.2.

73 In the general regime the information relating to the scope of the defendant's liability (and at his cost) may not be demanded by the plaintiff in the court proceedings. The same is true as concerns the drafted provision on liability in the planned GMO law.

(c) How are problems of multiple causes handled by the general regime?

Art. 441 § 1 civil code provides: "If several persons are liable for damage caused by a tort, their liability is joint and several". 74

According to case law, in a situation where two different persons could be strictly liable for the plaintiff's damage and there is no base to determine its actual source, both defendants are jointly and severally liable (art. 441 § 1 civil code) since neither is able to establish any of the available defences to strict liability (art. 434 and 435 civil code). 75

Where multiple parties are in fact responsible for the damage, it does not matter whether the actions of one party were direct or indirect or whether one party is more responsible or blameworthy than the other. Rather, it is considered a principle under Polish law that in cases where more than one person has caused the damage, the degree of liability of individual persons is not to be identified or differentiated. 76

In Polish civil law there are no special rules concerning alternative, potential or uncertain causation. These problems are solved through the application of the general principle of adequate causation (explained above). Polish positive law does not recognize the so-called alternate concurrent causality. It is disputable in the legal writing whether in such a situation the liability of concurrent actors should be joint and several[5]. 77

In the case law it is established that the fact that the damage could arise only in the case of aggravation of harmful substances emitted by a different industrial enterprise does not defeat strict liability of the only defendant enterprise (art. 435 civil code). The liability arises whenever an undertaking should be aware of the fact that any additional source of harmful pollution worsens living conditions in a given area and as a result of the accumulation of different effluences it may cause certain harms, even though the emissions originating in that enterprise did not themselves exceed the environmental standards prescribed in the relevant legal provisions. A defendant enterprise is responsible for the whole damage if it cannot provide any counter evidence supporting the conclusion that its activities did not cause the plaintiff's harm or caused only a small part of it. 78

The rule of joint and several liability is applied to a situation where the damage flowing from one event is increased by a consecutive cause that is adequately linked with the first one. Thus, all tortfeasors will be liable jointly and severally for the common infliction of the damage. According to the Supreme Court[6] "a joint infliction of damage is established when there are doubts as to who and in what extent contributed to the occurrence of the damage; it is a question of 79

[5] See *W. Czachórski*, System prawa cywilnego, t.III, cz. 1 (1981) s. 264.
[6] SN 17 January 1950, Na C. 204/49, *Panstwo i Prawo* 1950/11, 184.

an objective joining of acts, regardless of the wrongdoers' subjective evaluation of their acts".

80 The Polish civil code and case law do not provide for assessing the contribution of each of the tortfeasors in the inflicting of damage and it is of no relevance that one tortfeasor may have contributed more to the damage than the other. Such a fact may have significance only in the action for contribution claims (recourse) between the joint tortfeasors. Pursuant to art. 441 § 2 civil code "If the damage resulted from an action or omission of several persons, the one who paid the damages may request a refund of an adequate share from the others according to the circumstances and particularly according to the fault of the given person and the degree to which he contributed to the infliction of the damage".

81 Collective liability (through the contributions to special funds) is foreseen in maritime law.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

82 As used in art. 415 civil code, the term "fault" refers to a deviation from the required standard of care. The standard of care is addressed in art. 355, which states generally that a person is obligated to display the diligence generally required in relations of a given type (due diligence). However, the civil code also provides, in subsection 2 of art. 355, that: "The due diligence of the debtor within the scope of his economic activity shall be assessed with the consideration of the professional nature of that activity". This means that the duty of care required of a person engaged in a business is higher than the duty required of an ordinary person outside the profession.

83 The standard against which a professional tortfeasor's conduct is measured is objective, i.e., the comparison is with the conduct that would be expected of a professional of the given type, not with the conduct that would be expected of the individual tortfeasor himself. If there are clearly established statutory rules defining the required conduct for GMO agriculture, their violation proves negligence and is sufficient to establish liability (unless there some defences available).

84 The departure from the required standard of care does not need to be egregious in order for liability to be imposed. Any degree of departure – even the slightest fault – is enough for liability to be found. Under art. 415 civil code, the fault may be intentional or unintentional (negligence), but must always be proven by the victim.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

Only art. 435 civil code might be taken into account – "Anyone who runs his own enterprise or business set into motion by natural forces (steam, gas, electricity, liquid fuel, etc.) is liable for any damage to persons and property to whomever, caused through the operation of the enterprise or business, unless the damage occurred due to *force majeure* or exclusively through the fault of the injured party or of a third person for whom he is not responsible". However, in the cases of GMOs cultivation it is not feasible that a GMO user runs a business set into motion by natural forces. Even though the statutes concerning strict liability are interpreted extensively by courts, such an interpretation is not necessary here, since the Law on GMOs provides for the strict liability of a GMO user. 85

Illegality of activities is not a premise for strict liability in tort. Courts interpret art. 435 civil code so as not to preclude strict liability for activities that cause pollution up to the level authorised in an administrative decision, if they exceed the average level stemming from the socio-economic purpose of the immovable and local conditions (art. 144 civil code – see below at (c)). The regional conditions are to be taken into account. However, as stated above, this legal basis is not very useful to the cases of the kind covered by this study. 86

Typically, there are three exonerations from strict liability: (1) *force majeure* (*vis maior*); (2) the exclusive fault of the person suffering damage, and (3) the exclusive fault of a third person. Faulty conduct of the victim or of a third person must create a sole cause of the loss. It is not sufficient to point at an anonymous third person at fault. 87

Polish law contains no specific regulation on the assumption of risk. As a rule consent of the injured person will not always exclude strict liability. 88

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

The rules applicable to cases of neighbourhood problems belong to property law. Pursuant to art. 144 civil code "An owner of immovable property should in exercise of his rights therein refrain from activities which might interfere with the use of neighbouring immovables and which are in excess of the average level stemming from its socio-economic purpose and local conditions". An owner is entitled to restoration of the legal position and the cessation of infringement. "A neighbouring real immovable" is understood very broadly, thus including not only the adjoining real estate, but any real estate upon which the influence is exerted as a result of the activities taking place on a given immovable. 89

90 The above rules could find application to the cases covered by this study. Damage is not a pre-condition for these claims. If damage occurs, claims for compensation are to be based on tort law (art. 415 civil code, art. 435 civil code, special rules in the law on protection of the environment).

4. Damage and remedies

91 With regard to the general system of liability see the answers in I.4.

(a) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

92 According to art. 440 civil code, "in relations between natural persons, the extent of the duty to redress damage may be appropriately limited, if due to the financial situation of the injured person or the person liable for the damage the principles of social co-existence require such limitation". Polish courts rarely use this opportunity, mainly because it concerns physical persons only. Applying the provision by analogy to cases where one of the parties is a legal person has not been approved by courts. The judge may reduce the award taking into account all factors, including the economic position of the parties and the degree of the torfeasor's fault. The general condition for the reduction is a bad economic situation of the liable person (its assessment to be made on the basis both of the actual income, and of the earning capacity of the liable person). The fulfillment of this requirement alone is not sufficient, though, and must be defended by the principles of social co-existence (fairness). The provision of art. 440 civil code permits only reduction of the amount of damages, and not a total release of the liable person from their legal obligation to repair damage.[7] There are some limitations to the rule. It will not be applied in cases: i) of intentional fault, gross negligence or personal injury, since then the reduction would be contrary to the principle of fairness, ii) when the person liable has a liability insurance cover.[8]

(b) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

93 No such general duty exists. For atomic law – see I.6.

(c) Which procedures apply to obtain redress in such cases?

94 In order to obtain redress a regular lawsuit must be filed in the court of common jurisdiction.

[7] SN 4 February 1970, OSN 1970, at 202.
[8] SN 18 December 1969, OSN 1969, at 207.

(d) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

There are no such compensation systems that may be applicable to the studied cases. 95

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

Current law does not provide for specific and precise rules on allocating GMO testing, sampling and monitoring costs. In the case of justified suspicion of GMO presence in traditional products, as well as in the case of general monitoring, the GMO user is – under current law – obliged to reassess the risk of the use of GMOs. It may entail the costs of testing for GMO presence in other products. As a rule, such costs are borne by the user. If the user does not fulfil this statutory obligation, his licence may be withdrawn. 96

The draft law provides for the obligation of a user to monitor the cultivation of GMO crops (art. 168 draft act). Any costs associated with it are borne by the user. 97

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

The reporter has no information of any industry-based rules. 98

Under general rules, the expenses associated with sampling and testing for GMO presence in other products which have been borne by a non-GMO user should be considered as intended to prevent or reduce the scope of the damage and thus should be compensated on the basis of the theory of difference. Such costs should be recoverable even without the proof of actual GMO presence, as long as the non-user suffered actual financial loss, resulting for example from the decrease in the prices of products due to the contamination of some parts of the crops in the region. 99

However, if the sampling and testing is done in order to ensure that certain conditions for products produced under quality schemes (or laid down in contracts with retailers) are met, the expenses should not be treated as a compensable loss if no admixture is found, since they are within the business risk of the producer who is to show due diligence in performing his contractual duties. 100

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

101 No specific rules on jurisdiction and conflict of laws are in force or planned.

2. General rules of jurisdiction and choice of law

102 The general rules regarding the claims for compensation of damage caused through a tort refer to the place of the tort. Pursuant to art. 31 § 1 of the Act on International Private Law, the law applicable to a non-contractual obligation is the law of the state where the event creating the obligation occurred. This rule applies *inter alia* to an obligation to compensate damage arising out of a tort. Tort is understood very widely in Polish law, including the infliction of damage through a legal activity (when the liability is based on risk and there is no condition of wrongfulness).

Economic Loss Caused by GMOs in Portugal

Maria Manuel Veloso Gomes

I. Special liability or compensation regimes

1. Introduction

The economic loss suffered by conventional farmers due to their crops being admixed with genetically modified crops raises, first of all, the problematic issue of the existence of damage. The admixture may result from the absence or inadequacy of segregation measures, therefore an unlawful act. Nevertheless, even in the case of an infringement of technical rules or rules of protection, there remains the question whether the effect of the infringement can be qualified as a recoverable head of damage. 1

In the Portuguese tort law system, damage is a different requirement from unlawfulness and it has to be described in its actual features. The devaluation of the agricultural products of the affected crop, because they are compulsorily labelled as GMO products[1], that is, products containing or consisting of GMOs, might represent a harm, but cross-pollination as such cannot be "labelled 'damage' *per se*". Still, noxious effects of contamination on health, ecosystems and property are likely to happen. 2

These effects might be direct effects, caused to human health and the environment as the result of the GMO itself and which do not occur through a causal chain of events or indirect events, occurring through a causal chain of events. Probably the most complex category (amongst those defined in Annex II Principles for the environmental risk assessment in Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organism, repealing Council Directive 90/220/EEC and Law-Decree 72/2003, 10 April 2003, the law of transposition[2]) is that of cumulative long-term effects (*efeitos cumula* 3

[1] There is a threshold of 0.9% below which the presence of GMOs in food or feed does not require labelling (see Regulations 1829/2003 and 1830/2003).

[2] Law Decree 72/2003, 10 April 2003, Diário da República (DR) 85, Série A 10 April 2003.

tivos a longo prazo). It refers to the accumulated effects of consents on human health and the environment, including *inter alia* flora and fauna, soil fertility, soil degradation of organic material, the feed[3]/food chain[4], biological diversity, animal health and resistance problems in relation to antibiotics.

4 In fact, the latter situation (resistance problems in relation to antibiotics) involves additional costs for conventional farmers and might lead to the destruction of the crops (physical destruction) or to the impossibility to distribute seeds or final agricultural products, due to the kind of antibiotics used with the aim of saving the products.

5 In Portugal, there is no special liability regime for biotechnology claims due to cross-pollination. Nevertheless, it should be questioned if environmental protection rules or other rules can be invoked as far as economic damage of a person is concerned.

6 In *considerando* 16 the Directive 2001/18/EC[5] states that "the provisions of this Directive should be without prejudice to national legislation in the field of environmental liability, while Community legislation in this field needs to be complemented by rules covering liability for different types of environmental damage in all areas of the European Union".[6] The most important statutes after 2001 are the already mentioned Law-Decree 72/2003 and Law-Decree 160/2005, 21 September 2005[7], but they do not deal with GMO-liability cases.

[3] Law Decree 144/2005, 26 August, DR 164, Série I A, 26 August, (transposition of Directive 2004/17/CE of the Council (*Regula a produção, o controlo e a certificação de sementes de espécies agrícolas e de espécies hortícolas destinadas à comercialização*)).

[4] Law Decree 154/2005, 6 September 2005, DR 171, Série I A, 6 September 2005 (*actualiza o regime fitossanitário que cria e define as medidas de protecção fito sanitária destinadas a evitar a introdução e dispersão no território nacional e comunitário de organismos prejudiciais aos vegetais e produtos vegetais*), revised by Law Decree 193/2006, 26 September, DR 186, Série I A, 26 September.

[5] On the main differences between the Directive 90/220/EEC and Directive 2001/18/EC, *J. N. Fernandes*, Enquadramento legal e institucional dos microrganismos e organismos genetica mente modificados (MGM/OGM) em Portugal e na União Europeia II, *Boletim de Biotecnologia* 2002, 5 8.

[6] *J. N. Fernandes*, Enquadramento legal e institucional dos microrganismos e organismos geneti camente modificados (MGM/OGM) em Portugal e na União Europeia I, *Boletim de Biotecnologia* 2001, 70, 33. Until 2001, there were two notifications of clinical trials with Penicillum chrysogenum (for cheese production) and Saccharomyces cerevisiae (Microrganismos). Only in 2002, did the notifications reach the number of twelve. On the administrative rules of consent, see STA 10 April 2002, on "Elgina corn", www.dgsi.pt.

[7] Law Decree 160/2005, 21 September 2005, DR 182, Série I A. According to art. 26 A of Law Decree 164/2004, 3 July, DR 155, Série I A, 3 July 2004, a specific ruling would have to be approved about the measures to prevent the release of GMOs, including measures of coexist ence between traditional methods of cultivation and GMO cultivation. This last statute partially amended Law Decree 72/2003, 10 April 2003 (transposed the Directive 2001/18/EC of the Eu ropean Parliament and the Council). Previously Law Decree 129/93 20 April was the law of transposition of Directives 90/219/EEC and 90/220/EEC, of 23 April.

The Frame Law on Environment Protection, Law 11/87, 7 April 1987[8] (amended by Law 13/2002, 19 February 2002[9]) states in its art. 41, 1 that anyone who causes serious damage to the environment, by a particularly dangerous action, causation being established between the behaviour and damage, is strictly liable for the damage caused. 7

Although literally the scope of application only covers damage to the environment itself (*danos ecológicos*), many commentators are of the opinion that it also applies to *danos ambientais*, damage caused to the health of a person or the right of use of a thing, through the impairment of the environment[10]. There are no relevant differences between these two heads of damage[11]. Moreover, according to this viewpoint, it makes no sense to have two grounds of liability if frequently damage caused to the environment flows directly from the infringement of property rights.[12] 8

Another argument that may be referred to is the fact that since Portugal signed the Lugano Convention (on Civil liability for damage resulting from activities dangerous to the environment), environmental rulings should be read in the light of its dispositions. And in fact, the Convention covers both types of damage. 9

In practice, the absence of a rule extending the scope of application to damage to personality or property rights is irrelevant, since the majority of the legal scholarship considers that art. 41 is not in force.[13] Due to its vagueness, art. 41 needs further regulation (as the legislature also states in the article, as far as the amounts of compensation are concerned). 10

Law 83/95 31, August 1995 (*Lei da Acção Popular*; class actions Law) also imposes strict liability where an activity dangerous to the environment causes substantial harm and it could be read as a law developing environmental law. In spite of having a similar scope of protection it is worth mentioning that Law 83/95 protects homogeneous individual interests, which is not a requirement of the application of the Environmental Law. The prevailing view refuses to see in Law 83/95 a developing regulation.[14] To some others, the legislature cannot 11

[8] DR 81, I Série A, 7 April 1987.

[9] DR 42, I Série A, 19 February 2002.

[10] See, for all, the distinction between the two concepts, *J. S. C. Sendim*, Responsabilidade civil por danos ecológicos: da reparação do dano através da restauração natural (1998) 129.

[11] In general terms. But requirements might be different and the rules of compensation might present slight differences.

[12] *F. R. Condesso*, Direito do Ambiente (2001) 101; *J. M. Leitão*, Instrumentos de Direito privado para protecção do ambiente, *Revista Jurídica do Urbanismo e do Ambiente* 1997, 7, 26 65; *L. M. Leitão*, A tutela civil do ambiente, *Revista Direito Ordenamento do Território* 1999, 4 5, 11.

[13] Contra *V. Pereira da Silva*, Verde Cor do Direito Lições de Direito do Ambiente (2002) 265 ff. The Supreme Court, however, follows the prevailing view, STJ (*Supremo Tribunal de Justiça* 10 May 2005), www.dgsi.pt.

[14] *M. T. S. Gomes*, A responsabilidade civil na tutela do ambiente Panorâmica do Direito portu guês, in: Textos Ambiente e Consumo, Centro de Estudos Judiciários, II, (1996) 401 ff.; *J. S. C. Sendim*, Nota introdutória à Convenção do Conselho da Europa sobre responsabilidade civil pe

impose strict liability[15] without a rigorous definition of its requirements and general clauses such as "substantial harm" or "activity dangerous to the environment" should be explained. Since the Lugano Convention describes what is considered to be a dangerous activity (and imposes strict liability on the operator who controls the dangerous activity), this *lacuna* (on the content of the expression "dangerous activities"[16]) can *also* be filled by the criteria of the Convention. But also the framework of judicial and doctrinal definitions of dangerous activities (for the purpose of applying a special fault liability ruling) must be taken into consideration. Thus, if an activity by nature or by the means it convokes is likely to cause frequent or severe damage it is deemed "dangerous".

12 The line taken by the Frame Law on the Environment was already subject to some criticism. It has been suggested, for instance, that not only significant damages should be recoverable, in particular if there is damage to health or property. Therefore, the definition of risk should be based exclusively on the dangerousness of the activity to the environment[17]. However, the Lugano Convention expressly provides for strict liability in the case of significant damage (art. 8 d).

13 Another hypothetical liability regime is the one that is adopted by the Environmental Liability Directive 2004/35/EC April 2004 that has been transposed by Law-Decree 147/2008, 29 July. It applies to GMOs (art. 18, 3 b[18] and also n.11 of Annex III of the Directive and n.10 and 11 of Annex III of Law-Decree 147/2008)[19]. Nevertheless, economic losses suffered by individuals do not fall within the scope of the Directive (*considerando* 14). However the injured person can always claim damage to protected species, to natural habitats, to water or to land that represents a significant risk to human health caused by the release of GMOs.

14 Scrutinising the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 24 May 2000[20] and the Law-Decree 7/2004, 17 April 2004 (which ratified it)[21], we arrive at a similar outcome: property damage is not expressly included unless it is encompassed by damage to biological diversity. The same results from Regulation (EC) No 1946/2003 of the European Par-

los danos causados por actividades perigosas para o ambiente, *Revista Jurídica do Urbanismo e do Ambiente* 1995, 3, 147 ff.

[15] According to art. 483, 2 *Código Civil Português*, strict liability depends upon a legal rule.

[16] To *J. P. R. Marques*, A comercialização de organismos geneticamente modificados e os direitos dos consumidores: alguns aspectos substanciais, procedimentais e processuais, *Estudos de Direito do Consumidor* 1999, 1, 237, after the Directive of 1990, the Member States were forced to deal with GMOs as potentially dangerous substances.

[17] *M. Ferreira*, Responsabilidade civil ambiental em Portugal: Legislação e Jurisprudência, in: Textos Ambiente e Consumo (1996) 381.

[18] *L. Bergkamp*, An international liability regime for living modified organisms? ELM (*Environmental Law and Management*) 2004, 16.

[19] In the White Paper on Environmental Liability, the Commission had included damage to personal rights and goods.

[20] *J. P. Bastos*, A convenção sobre diversidade biológica e os problemas dos organismos geneticamente modificados, *Revista portuguesa de instituições internacionais e comunitárias*, 61 ff.

[21] DR Série I A, 27 December 1994, 298, 730.

liament and of the Council of 15 July 2003 on Transboundary Movements of GMOs (and corresponding Law-Decree 36/2006, 20 February 2006, DR 36 Série-A 20 February 2006, adopting the Protocol).

Economic loss stemming from the release of GMOs can be framed, apart from the general fault liability rule (art. 483, 1 *Código Civil Português* [CCP]), in the special liability regime for dangerous activities. According to art. 493, 2 CCP, the presumption of fault can be rebutted by proving that, in spite of performing a dangerous activity, the tortfeasor took all the measures to avoid the damage. 15

Another (general) basis of liability is art. 493, 1 CCP. The proprietor of a movable or an immovable good with a special duty to supervise the good is liable for the damage caused by the good, unless he proves he did not act with fault or that the harm would have occurred even if his duties of care had been fulfilled. 16

Since the Portuguese Constitution (CRP) recognizes the right to the environment[22] (art. 66 CRP), civil law rules are commonly read in the light of the Constitution. This is more evident in the regulation of nuisance. These rules are actually seen as environmental protection-oriented rules[23]. This regulation (art. 1346 CCP) entitles a landowner (or the proprietor of an immovable) to claim compensation in the case of emissions from another property that cause a substantial impairment to the use of his immovable or that cannot be considered as a consequence of the normal use or current use of that property. No fault is required. The Portuguese Courts apply the regime, combining it with the constitutional protection of the right to the environment and the right to personality (mainly the "right to rest" or rather physical integrity). 17

This personality rights approach (with its legal basis in art. 70 CCP)[24] was particularly evident in the 80s and 90s. It led inclusively to extreme reactions against noise or other kinds of emissions, even resulting in the sacrifice of enterprises and workers. Nowadays, the idea of a pure conflict of rights is overcome by the balancing of rights, according to the three faces of the Proportionality Principle: necessity, adequacy and proportionality *stricto sensu*. Henceforth, prohibition of the activity shall remain as the last remedy. Also compensation (for future damage) depends on if it is possible or not to harmonize emissions and the use of the property. 18

The Portuguese Courts have succeeded in solving many environmental conflicts (particularly those related to *danos ambientais*, not to the environment itself) applying either nuisance rules or personality rules (or both). It is obvious that economic damage resulting from GMO presence is closer to the first solution. However if it is feasible in abstract to apply such a regime, it is probably difficult to convince 19

[22] *J. J. G. Canotilho*, Procedimento administrativo e defesa do ambiente, *Revista de legislação e de jurisprudência* 124, 3802, 9.

[23] *L. M. Leitão* (supra fn. 12) 20 28. See also *A. M. Cordeiro*, Anotação ao Acordão do Supremo Tribunal de Justiça de 2 de Julho de 1996, ROA (*Revista da Ordem dos Advogados*) 1996, 683.

[24] *R. Capelo de Sousa*, O direito geral de personalidade (1995) 295.

the courts that GMO use is not a current use (unless of course there was a failure in the consent process, but then fault liability would probably apply). The other basis to raise an actionable nuisance claim is to prove a substantial impairment of the use of land, which sounds like a solid ground for GMO-liability claims. There are no decisions on this kind of claim, but it is foreseeable that the grounds for these decisions would be nuisance regulations and the environmental liability regulation (if, and only if, the court accepts the coming into force of art. 41 and the broad interpretation of the same article in order to include damage to property).

20 A weak support is on the contrary offered by Product Liability regulations. The main objection cannot consist anymore of the fact that the Directive and the national acts do not cover damage caused by agricultural products. In fact, after the amendment of Law-Decree 383/89, 6 November, that took place with Law 131/2001, 24 April (which amended Law-Decree 383/89, 6 November), these products are also encompassed. The Product Liability Act regulates that a producer is liable for damage caused by his product. A product is defective if it does not provide the safety a person is entitled to expect.

21 Here comes probably the first difficulty. Can the farmer prove the defectiveness of the product (the presence of GMOs)? It should also be noted that the "defect" should occur in the production process. The second difficulty *rectius* objection to the application of this ruling regards its own scope of application. In fact, only damage caused to property intended or used for private use[25] or for consumption[26] are encompassed. Finally, it is questionable if we should accept in this field the state-of-the-art defence. According to art. 5, e Law-Decree 383/89, where the scientific and technical knowledge at the time when the offence took place cannot be conclusive about the unsafety of a product (development risk), the producer can be exempted from liability.

22 Even if there is no special liability regime, the existence of special duties of care might be helpful when establishing unlawfulness or causation. In fact, in Portugal, a judicial presumption of fault is accepted where there is an infringement of a protective rule whose aim is to protect against the harm actually inflicted and to protect the person in question. Therefore, the infringement of special duties of care probably facilitates the proof of some requirements. That is the case, for instance, of:

a) the duty to inform[27] (in particular, to inform neighbours of the intention to plant GMOs, according to art. 4, 1, e Law-Decree 160/2005);
b) the monitoring duty; according to art. 6, 2, v and art. 20 Directive 2001/18/EC, the notification should include a plan for monitoring;

[25] *J. C. Silva*, Responsabilidade civil do produtor (1999) 697 700. See also, La responsabilité du fait dês produits défectueux en droit portugais, Revue européenne de droit de la consommation, 1992, 1, 16 19, by the same author.

[26] Objective and subjective criteria are used to ascertain private use. The damaged asset must by its nature be destined for private use and the owner must use it that way. For further explanation on the restrictions as to the damage to property, *J. C. Silva* (supra fn. 25) 698.

[27] Law Decree 19/2006, 12 June transposition of Directive 2003/4/CE 28 January.

c) the technical rules on cultivation, such as the imposition of buffer zones and isolation distances, following Recommendation 2003/556/EEC. To illustrate with an example, Law-Decree 160/2005, Annex I, A, 2, 1 imposes a distance between traditional corn cultivation and corn with GMOs of 200m.[28]

Since there is no special liability regime that deals with the deliberate release of GMOs (the intentional introduction into the environment of a combination of GMOs for which no specific containment measures are used to limit the contact with and to provide a high level of safety for the general population and the environment, according to the definition in art. 2, 3 Directive 2001, corresponding to art. 2, c Law-Decree 2003), some proposals have come to light. The clear extension of strict liability to *danos ambientais*, the relaxation of the burden of proof of causation and the creation of a financial guarantee for operators performing dangerous activities are some of the measures to be adopted. 23

In conclusion, we can say that although there is no special liability regime, several grounds of liability can be invoked. Moreover, the most commonly used one is the nuisance regime, in spite of its general application (even to cases that escape from the protection of the environment provisions). Probably the most adequate regime to deal with these issues is the one found in the rules of Environmental Law on liability, adjusted to some solutions of the Lugano Convention (until now not ratified). On one side, the concept of dangerous activity and the acceptance of two heads of damage as explained supra should be followed. On the other side, the solutions held in the Convention about defences cannot be undoubtedly accepted in Portugal as will be explained infra. 24

The following answers presuppose that art. 41 is in force (which corresponds to a minority view in the Portuguese legal scholarship) and that it also applies to *danos ambientais* (damage caused to health or property, in particular). 25

Personally, we feel we should reject in principle the establishment of strict liability regimes without the determination of caps (in this case expressly mentioned by law). We are more prone to accept that the same rules might apply to different types of damage deriving from an impairment of the environment. 26

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

The general rules apply, since there is no specific provision dealing with the establishment of causation. The adverse effect on human health and the environment or property must be a foreseeable effect of the action (art. 563 CCP). 27

[28] It might be difficult to implement since the north of the country is full of small parcels of culti vated land. According to Portaria 904/2006, 4 September 2006, GMO free parcels of land must have a minimum of 3000 ha in total.

28 Legal scholarship accepts the theory of adequate causation. According to the positive formulation of that theory[29], the act of the tortfeasor is a cause of the damage if, in abstract, it was apt to produce it, in accordance with the normal course of events and the specific knowledge of the tortfeasor. Although the negative formulation is said to be the decisive one, some authors hold that in the case of strict liability the positive formulation should be exclusively applied. It has already been alleged that a different solution might lead to an undesired extension of (strict) liability.

29 In order to complement such theory, and to avoid its weak points, the judge shall examine the scope of the infringed rule and he must determine what are the interests and the persons the law wants to protect (and what is the extent of that protection). If the damage falls in the circle of the protected interests, then there is causation. The theory is presented as a doctrinal construction; differently to what happens with adequate causation (that has a legal basis in art. 563 CCP).

30 There are no specific regulations allocating the costs of testing.

31 In the Lugano Convention, however, the cost of preventive measures and of impairments due to the adoption of preventive measures are an autonomous head of damage (art. 2, 7, a–c and art. 2, 9).

(b) How is the burden of proof distributed?

32 According to the general rules, the burden of proving liability requirements lies with the victim, the person who has to prove the factual elements of the rules he wants to invoke (art. 334 CCP).

33 Due to special difficulties for the victim to prove causation, the judge is more prone to accept *prima facie* proof.[30]

34 Although there are special rules on transportation of GMO-products, they do not change the distribution of the burden of proof.

(c) How are problems of multiple causes handled by the regime?

35 The general rule on tort liability applies. Art. 497 CCP (or joint liability) can be found in the section of liability for unlawful acts, but according to art. 499 CCP, rules of that section can also be extended to strict liability cases.

36 In tort liability, the injurers are jointly liable, even if they acted separately. Since there is no fault, the right of redress depends only on each other's con-

[29] *M. J. A. Costa*, Direito das Obrigações (8th ed. 2000) 694 704; and *F. P. Coelho*, O problema da causa virtual (1973) 28; also in A causalidade na responsabilidade civil em direito português, *Revista de Direito e Estudos Sociais* 1976, 4, 3.

[30] *J. P. R. Marques* (supra fn. 16) 294.

tribution to the harm (art. 497, 2 CCP). If one of the tortfeasors is found guilty, he will have to bear the responsibility for the entire damage.

There are no rules on alternative, potential or uncertain causation, but recourse to the idea of *one* unlawful act, perpetrated by several tortfeasors that infringed a rule of protection might[31] bypass that absence. Still, it would probably be seen as a strained solution by the courts. In cases of potential claimants, the judge most probably will exempt the "potential" tortfeasor, since his act was not a *conditio sine qua non* of the damage (the first step of the adequate causation theory). 37

According to the Product Liability Act (art. 6, 2), the act of a third person does not exempt the producer. Therefore, according to the general rules, both are liable. However, the right of redress shall not be assessed according to art. 5, 2 of that statute, but to the general rule. The only difference is that in the Product Liability Act, apart from the degree of fault and the contribution to the damage, the personal creation of risk is also taken into consideration. 38

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

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(b) If it is a strict liability regime, is there still a set of defences available to the actor?

The Environmental Law does not mention defences. Act of God is regarded as a *general* defence for strict liability cases, in spite of being stipulated, in the Civil Code, only in the rulings of damage caused in traffic accidents (art. 505 CCP). 39

A faulty act of a third person usually excludes compensation. According to the evolving treatment of contributory negligence in recent statutes, it might be said that contributory negligence only exempts the tortfeasor if the victim acted with intentional fault (or at least with gross negligence) and if the act of the victim was the exclusive cause of the accident. If the risk factor played a role, in spite of contributory negligence, liability shall not be excluded. 40

Some statutes provide solutions of diminishing compensation in the case of co-existence of risk and contributory negligence, but it is up to the courts to decide if these solutions are applied by analogy to environmental issues. If this is not the case, then environmental strict liability would appear as an "absolute" strict liability regime, which is unusual. Still, the defence of Act of God would be possible, according to an unwritten rule or probably the idea that in this situa- 41

[31] *H. S. Antunes*, Ambiente e responsabilidade civil, in: *M. M. Rocha* (ed.), Estudos de Direito do Ambiente (2003) 177.

tion there was no factual behaviour of the tortfeasor since he was dominated by stronger elements, that he could not foresee or control, even if predictable.

42 As to the regulatory permit defence, we should emphasize the fact that according to the Environmental Liability Directive (art. 8, 4, a), Member States can introduce it. This and other defences were mandatory in the Proposal for a Directive of the Commission in 2002. Also the Lugano Convention introduces as a defence, proof that the damage was caused though there was compliance with the orders, conditions or measures of the public authorities.

43 In *R* v *Secretary of State for the Environment and MAFF, ex part Watson*[32], an application for judicial review was brought by an organic farmer in respect of a decision granting consent for GMO use. The latter claimed that the consent was invalid since it failed to address the likeliness of cross-pollination and its degree. The claim was rejected; the Court of Appeal held that the regulatory regime does not require a guarantee that there will be no cross-pollination.

44 In Portuguese law, in general an operator cannot exempt himself by proving he has complied with the authorities' requirements (as in the case above-mentioned, there is no general guarantee that no harm will be produced). Still, licences[33] (consents) might have an *efeito justificativo preclusivo*, that is, the effect of preventing actions against the owner of the licence, since licences are deemed as justification of his behaviour. That effect only occurs when it is expressly prescribed by a justification rule, respecting fundamental rights.[34]

45 This legitimising effect in principle does not exclude compensation (it only affects injunctive measures)[35]. The solution has substantial support in art. 1347, 2 CC (see infra II.3(c)).

46 Also the main provision on liability, art. 41, 1 of the Environmental Law, states undoubtedly that compensation is payable even if the tortfeasor obeys the rules.

47 The case law disregards completely the existence of a licence. This defence is seldom accepted whether prevention is pursued or compensation claimed. In

[32] *M. Lee/R. Burrell*, Liability for the escape of GM seeds: pursuing the victim? *Modern Law Review* 2002, 65, 528.

[33] *J. G. Canotilho*, Actos autorizativos jurídico públicos e responsabilidade por danos ambientais, *Boletim da Faculdade de Direito* 1993, 69, 1 69 and *R. Carvalho*, Licença ambiental como pro cedimento autorizativo, in: *M. M. Rocha* (ed.) Estudos de Direito do Ambiente (2003) 242 243 and 246 255.

[34] Also *F. Calvão*, Direito ao ambiente e tutela processual das relações de vizinhança, in: Estudos de Direito do Ambiente (2003) 226 229, admitting the liability of the administration (but sub sidiarily), with the right of redress of the State (according to Law 67/2007, 31 December 2007, DR I Série, N. 251). See the decisions of Tribunale I grado, Sez. II, 10 March 2004, *Malagutti-Vezinhet SA v. Commissione delle Comunità Europee.*

[35] *J. P. R. Marques* (supra fn. 16) 282; and *M. Poto*, Il principio di precauzione quale baluardo del la sicurezza alimentare: spunti problematici su coordinamento tra l'attività della Commissione e gli oblighi delle autorità nazionali, Resp. Civ. Prev. (*Responsabilità Civile e Previdenza*) 2005, 2, 365.

the Supreme Court decision of 22 September 2005[36], the plaintiff claimed that the noise produced (under the maximum level) represented an impairment of his right of personality or/and of his right of property. The court accepted the claim.

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

No differentiation is made between liability regarding damage to crop production or to seed production. 48

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

A fault liability regime coexists with the strict liability regime. Claims can be brought subsidiarily, if the plaintiff is afraid of being unable to prove the specific requirements of tortious liability. 49

The rule of coexistence of liability regimes is expressly stated in the Product Liability Act (art. 13). 50

Also two strict liability regimes can coexist. Neighbour law can for instance be the basis of a subsidiary claim, where an impairment of the environment did not reach the threshold of "significant damage". 51

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described? In what way is pure economic loss handled differently to other types of losses, if at all?

Damage consists of the infringement of a legally protected interest. 52

Compensation covers actual positive damage and loss of profit (art. 564 CC). Also future damage is recoverable if predictable. 53

Pure economic loss[37] is not recoverable in tort liability unless there is a rule providing for its compensation. 54

[36] STJ 22 September 2005, www.dgsi.pt.

[37] *J. Sinde Monteiro*, Responsabilidade por conselhos, recomendações e informações (1989) 187 ff., 269 and 281 286.

55 According to art. 48, 3 Environmental Law, if reconstitution is not possible[38], the tortfeasors have to pay a special compensation (that shall be determined by law) and to bear the costs in order to minimize the effects. This rule is deemed to represent the general regime on compensation of environmental damage (for all grounds of liability).

56 According to general rules of compensation (art. 566, 1 CCP), payment in money occurs if reconstitution is not possible, too demanding for the tortfeasor or if it only partially covers the damage caused. It seems there is a clear preference for *reconstitutio*[39] in Environmental Law, since only one condition (impossibility) justifies the payment in money.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

57 Fear may justify preventive measures, but it cannot be deemed as actual damage. According to art. 7.4 Lugano Convention, if there is an imminent risk of contamination due to the infringement of technical rules, the authorities can order the total or partial destruction of the GMO cultivated fields.

58 This solution is also grounded on the fact that, according to the legislature, GMO-cultivation, following the administrative proceedings, should not have restrictions. That idea is stated in *considerando* 4 of the Preamble of Law-Decree 160/2005.

59 Art. 3, 1, a Environmental Directive Liability also applies if there is an imminent threat of environmental damage.

(c) Where does the scheme draw the line between compensable and non compensable losses?

60 There are no special rules on the issue. A Portuguese judge would most probably deny compensation in the case of fear. If the producer cannot sell his products, because there is an unjustified fear that all products of the same region are contaminated, he cannot recover loss of profits. There is no causal link between the direct injury (to the contaminated crop) and the "damage" sustained by the farmer.

(d) What are the criteria for determining the amount of compensation?

61 Since, at the moment, there is a market-advantage for non-GM products (especially if organic), damage must be assessed taking into account the depreciation of the products, according to market prices.

[38] *J. S. C. Sendim* (supra fn. 10) 181.
[39] *M. T. S. Gomes* A responsabilidade civil na tutela do ambiente. Panorâmica do direito português, http://siddamb.apambiente.pt., 1.

The Directive 2001/18/EC regards the spread of the GMO(s) in the environment as a "potential adverse effect" (Annex II) and suggests that there should be a "comparison of the characteristics of the GMOs with those of the non-modified organism". 62

Costs in order to regain a certain producer status (publicity) would most probably not be covered. 63

(e) Is there a financial limit to liability?

Art. 41, 2 of the Environmental Law states that the amount of liability will be regulated in a special statute (which has not yet been drafted). That is precisely the reason alleged to consider that art. 41 is not in force. 64

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

The Frame Law on Environment (art. 43) provides that those who perform activities with a high degree of risk (qualified as such) shall take out liability insurance. 65

This ruling is not in force, according to the majority of legal commentators. Regulation on the coverage, caps and the characterization of the activities of the environmental operators are still missing[40]. Therefore, it would be inappropriate to impose such a vague duty. 66

(g) Which procedures apply to obtain redress?

There are no special rules. An ordinary action takes place. 67

The claimants are exempt from the payment of preparatory judicial costs if there is an infringement of the rules prescribed (art. 44). 68

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

According to Directive 2001/18/EC (art. 23), where a Member State has detailed grounds for considering that a GMO, which has received written consent, might constitute a risk to human health or the environment, the Member State may provisionally restrict or prohibit its use and/or sale. In cases where there is a severe risk, suspension and termination measures shall be available. 69

[40] *J. P. Reis*, Lei de bases do Ambiente (Anotada e comentada) (1992) 93 ff.

70 Suspension can also be obtained by individuals, according to art. 42[41]. Also preventive measures thought to protect collective interests can have the same effect[42]. The Frame Law of Environmental Administrative Penalties, Law 50/2006, 29 August 2006 (DR, I-Série, 166, 29 August 2006), allows suspension as a provisional measure (art. 41) and as an accessory sanction (with the limit of three years, and if there was a serious and clear infringement of the tortfeasor's duties or if he abused his functions due to a special blameworthy act, according to art. 30)

5. Compensation funds

71 According to art. 14 Law-Decree 160/2005, the government must create a fund to cover economic loss[43], flowing from accidental contamination, financed by producers and private entities involved in the production process.

72 The Act providing for the Compensation Fund was approved by the Council of Ministers on 8 June 2006, and the Fund was finally approved by Law-Decree 387/2007, 28 November 2007. The Fund is targeted to compensate eventual economic damage, due to accidental contamination (art. 1, 1). It entitles farmers, private or legal persons, to claim compensation if the contamination of GMOs in their products is over 0.9%. Another special Fund had already been created, the *Fundo de Intervenção Ambiental.* According to Law 50/2006, 29 August 2006, this Fund covers the expenses for the prevention and compensation of damage deriving from acts harmful to the environment, namely where the tortfeasors cannot give compensation in due time (art. 70). There are no references on the field of application of this Fund in comparison to the specific GMO-Fund.

73 In order to claim compensation to be paid by the GMO Compensation Fund for the damage caused to the products in the first phase of marketing (art. 2), the person entitled must prove that:

a) the contamination occurred in the same cultivation campaign and in a species sexually compatible with GMOs cultivated in the country (art. 8, 1, a);

[41] *J. E. F. Dias*, As providências cautelares na acção popular civil ambiental e o relevo do princípio da proporcionalidade, *RevCEDOUA* 2002, 1, 133. *R. de Andrade*, A acção popular no Direito Administrativo português (1967).

[42] *J. E. F. Dias* (supra fn. 41) 142 143. See also *M. A. S. Aragão*, O princípio do Poluidor pagador, and *J. J. G. Canotilho*, A responsabilidade por danos ambientais aproximação juspublicística, in: Direito do Ambiente (1994) 397 399.

[43] The ecologist party "Os Verdes" submitted the Proposals of the Government on this field to harsh criticism. It criticized the fact that the Fund only covers certain economic losses. Apart from non pecuniary loss, also some pecuniary losses were forgotten. The costs of depreciation of the products, the costs of preventive measures, the loss of clients and the shortening of productivity should have also been encompassed by the compensation. Moreover, the limit of 0.9% shall not be immediately adapted as a limit for compensation, since it was thought specifically for labelling products. Finally, the requirements of such compensation should not depend of an ad hoc Commission and even the legal requirements cannot be accepted. Contaminations may occur from one campaign to the other, situation set apart by the legislature. Some minor critics targeted the limitation period of the Fund (five years) and the fact that the Fund is based on the taxes on seeds'packages, clearly insufficient.

b) the contamination actually occurred (art. 8, 1, b), namely through the identification and measurement of the actual GMOs (based on reliable laboratory results);
c) the seed used had been certified (art. 8, 1, c); and
d) the fields with non-GMO crops are located at a distance which cannot be superior to the legal distance defined for each species (art. 8, 1, d).

(a) How are these funds financed?

Green taxes[44] play an important role when it comes to financing funds. They are usually also financed by their own income and assets. 74

The Law-Decree states that the Fund is based on the annual taxes on seeds' packages of GMOs[45] and of any income and goods of the Fund (art. 6, 1). Producers and private enterprises as part of the correspondent productive process should support this Fund, according to art. 14 Law-Decree 160/2005. 75

The *Fundo de Intervenção ambiental* is financed, among other sources, by part of the amounts obtained by the administrative measures (art. 6 Law-Decree 150/2008, 30 July) against whoever commits an unlawful and faulty act, by breaching the legal rules and other regulations on the environment that recognize rights or prescribe duties (art. 1, 2 Law 50/2006). 76

(b) Is there any contribution granted by the national or regional authorities?

There are no references to special contributions by the national or regional authorities. 77

(c) Is the contribution to the fund mandatory or voluntary?

See b). 78

(d) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

(e) How are the funds operated?

The *Direcção Geral de Agricultura, do Desenvolvimento Rural e das Pes cas* (DSADR, Directorate General for Agriculture, Rural Development and Fishing) is in charge of managing the Fund in technical matters. The Direcção-Geral do Tesouro e Finanças (Directorate General for the Treasury) will manage the Fund and corresponding resources. 79

[44] Introduced in this field of GMOs by Law Decree 63/99, 2 March; *C. Soares*, The use of tax instruments to deal with air pollution in Portugal, *RevCEDOUA* 2003, 1. *T. M. Leitão*, Civil liability for environmental damage (1995). Fixing the most recent amounts, Portaria 384/2006 19 April, DR 77 Série I B, 19 April.

[45] *C. Soares*, A inevitabilidade da tributação ambiental, in: *M. M. Rocha* (ed.), Estudos de Direito do Ambiente (2003) 23 48.

80 The *Grupo de Avaliação* (Assessment Group, GA) is the body in charge of deciding justified claims. Representatives of the Ministry of Agriculture, Rural Development and Fishing, and of associations of farmers, producers, sellers and other industries in the field are part of the GA.

81 The Group must also assess the amount of compensation, and the decision must be approved by the Minister of Agriculture, Rural Development and Fishing.

(f) Are there any provisions for recourse against those responsible for the actual cause of the loss?

82 According to art. 8, 3, compensation claims based on the infringement of technical rules (prescribed by Law-Decree 160/2005) are excluded from the application of the Law-Decree on the Compensation Fund. In this case, there is no recourse whatsoever, since the Fund is exempt from paying damages. The legislature, in the same article, states that these claims shall be ruled by Law-Decree 160/2005 and the general ruling on tort liability. The first statute does not regulate civil liability claims, although it prescribes administrative sanctions in case of a breach of duty. The remission to "the general ruling on tort liability" is contestable if meant in a strict sense. A literal reading draws the conclusion that only the general rule of fault liability, based on the proof of fault (art. 483 CCP) would apply. The conclusion cannot be accepted. As explained before, there are in Portugal other regimes of compensation, based on strict liability (Environmental Law) or on presumptions of fault (art. 493 CCP). Therefore, it seems that the rules on civil liability apply (not only the *general* rule). Nevertheless, the legislature accepts that the Fund might pay if there is a faulty act of the farmer, but in this case there is recourse (art. 12, 6).

6. Comparison to other specific liability or compensation regimes

83 The "specific" liability regime described does not regard GMOs exclusively. Environmental liability does not require fault nor does the product liability regime. Both are regarded as exceptional, since the general rule of liability is based on proof of fault.

84 In spite of detailed regulation, the Product Liability Act is scarcely applied. Proving the defect (when possible) corresponds to proof of fault in many cases. Therefore, the action is usually actionable on the basis of general tortious liability.

85 Contrary to that, the Environmental Law provides just a few rules on liability. The paucity of regulation was also the cause of the doubts of whether the Law was or was not in force.

86 Both regimes are confined by other rulings that take what could be their natural space. Rules on consumer protection replace product liability solutions. Neighbourhood regulations offer an extensive protection and fulfil the role of a basilar system of environmental protection (in civil law).

II. General liability or other compensation schemes

1. Introduction

As was mentioned in the Introduction, several regimes can be applied to economic damage resulting from GMO presence in traditional crops. 87

First of all, the victim can claim compensation for the damage caused by the unlawful act of a third person who acted with intentional or non-intentional fault (art. 483, 1 CCP). The unlawfulness might consist of: 88

a) infringement of an absolute right, such as property;
b) infringement of a protective rule, as some technical rules in GMO Directives and Regulations. In case of infringement of a *Schutznorm*, the courts will presume fault;[46]
c) infringement of bonus mores (art. 334 CCP).

As explained previously, two presumptions of fault are also a possible ground for liability. Either because the GMO farmer has a special duty to supervise his own land and prevent damage to other persons or because he is operating with dangerous activities, his fault is presumed, according to art. 493, 1 and art. 493, 2 CCP respectively. 89

Finally, it should be mentioned that the regime on private nuisance seems quite satisfactory due to its extent of protection (any damage is covered: pecuniary, non-pecuniary, ecological damage and damage caused directly to individuals.) 90

2. Causation

(a) What criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

Art. 563 CCP represents the general rule[47] for establishing causation, regardless of the type of liability. 91

See supra I.2(a). 92

(b) How is the burden of proof distributed?

See supra I.2(b). 93

[46] According to *J. P. R. Marques*, Biotecnologia(s) e Propriedade Intelectual I, 2007, 1032, fn. 2385, the classification of Law Decree 72/2003, 10 April 2003 (previous to 2005 Decree on GMO regulations) as a rule of protection is questionable. As to the 2005 Decree rules, the author claims they might be deemed as such, regarding to protection of neighbouring farmers. On rules of protection, *J. S. Monteiro* (supra fn. 37) 383 and *A. M. Cordeiro*, Da responsabili dade civil dos administradores (1998) 404.

[47] *L. M. Leitão*, Direito das Obrigações I (2000) 302 308.

94 It has been held that fault presumptions also cover causation matters. That position has remained isolated in the legal scholarship and in the case law. On the contrary in the case of a presumption of fault, the proof of a special link between the dangerousness of the activity and the damage caused is also required.

95 Illustrating with a (real) example: an enterprise was working on a bridge, recovering some parts of the structure. Due to the lack of signs informing that such work was taking place, there was a car accident. The owner of the car alleged that since the works on the bridge were a dangerous activity, the burden of proof lies on the plaintiff. The Court decided however that the damage could not be imputable to the particular dangerousness of the activity. Even if the enterprise had been planting flowers, the cause of the accident would remain the same: the lack of signs.

(c) How are problems of multiple causes handled by the general regime?

96 Several wrongdoers are jointly liable for the damage caused (art. 497 CCP). As to the right of redress, it depends on the contribution to the damage and the degree of fault of the defendants.

97 See also supra I.2(c).

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

98 Portuguese tort law adopted an objective standard of fault. There is fault if the tortfeasor did not act, as, according to the circumstances of the case, a reasonable person would have acted (art. 487 CCP).

99 In the case of professionals, that rule means that the professional must act as a good and competent professional in his area of knowledge. The existence of statutory behavioural rules helps the judge to ascertain the correct behaviour that ought to have been adopted.

100 According to art. 493, 2 CCP, the tortfeasor can rebut the presumption of fault by proving he took all the measures to avoid the damage. Some legal commentators saw in the wording of the article ("adopt all measures") a more demanding criterion than the general one. The case law, however, never accepted the "alleged" difference between this article and rules on presumption of fault, except as far as virtual cause is concerned. The tortfeasor, in the case of dangerous activities, cannot be exempt from liability by proving that the damage would have occurred even in the case of due care.

101 In the case of an infringement of established statutory rules defining the required conduct for GMO agriculture, fault is presumed if the damage falls within the circle of interests protected by the rule.

If, on the contrary, the rules were obeyed, but that did not prevent the occurrence of damage, GMO farmers might be responsible because of the impairment of property or health. 102

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

See next question. 103

(c) Does your jurisdiction provide for special rules applicable to cases of the landowner or similar neighbourhood problems?

The main rules applicable to cases of neighbourhood problems are art. 1346 and art. 1347 CCP. According to the first article, the proprietor of an immovable has the right of opposition against emissions of smoke, heat, noise or other analogous substances if the emission causes substantial harm to the use of the immovable or if it does not correspond to the normal use of the immovable. The remedy provided is not only the termination of the emission (*actio negatoria*) or even the change of conditions, but also compensation. In spite of the silence of the law, no one doubted that "liability measures" were also a consequence of such emissions. 104

The landowner can claim compensation for damage caused by the construction or the conservation of works or stores of dangerous substances if there is a fear that they might be noxious to neighbours (art. 1347, 1 CCP[48]). If the works or stores had been approved or if there was adherence to administrative measures, only when actual damage occurs is it possible to ask for their destruction (art. 1347, 2 CCP). Fear is therefore only relevant when there is actual damage. Before the actual damage arises, administrative rules seem to legitimize the action. 105

In any case, whether there was adherence to the terms of a licence or not, the victim can claim compensation, without having to prove the fault of the other landowner. 106

As already said in the Introduction, the nuisance regime is now read as an environmental rule, although there are still some limitations, as to the fact it requires a property right. An extension of the protection to lessees[49] and also to persons that cannot properly be called neighbours (because they live too far away) is desirable.[50] 107

[48] In this article, emissions not covered by the previous article are encompassed, *F. Pires de Lima/J. A. Varela*, with the collaboration of *H. Mesquita*, Código Civil Anotado III (2nd ed. 1987) 180.

[49] *F. Calvão* (supra fn. 34) 201 203.

[50] *F. Pires de Lima/J. A. Varela*, with the collaboration of *H. Mesquita* (supra fn. 48) 178.

4. Damage and remedies

(a) How is damage defined and measured?

108 One might say that, "traditional concepts of harm and injury may need to be revisited, in circumstances where questions of *variability* rather than traditional *impairment* are in issue".[51] The traditional definition (see supra I.4(a)) following that stance, would be replaced by a new formula, where damage is identified as the frustration of a utility protected by the law.

109 Pecuniary damage and non-pecuniary damage entail compensation.

110 Pure economic loss is recoverable if there is a rule protecting "patrimonial integrity per se". Usually, this occurs in the field of obligation to inform or disclose.

111 Some commentators believe that in particular where there was a faulty act causing damage to the environment, compensation should entail the loss suffared.[52] *De iure condendo*, the solution would have a decisive preventive effect.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

112 See supra I.4(b).

(c) Where does your legal system draw the line between compensable and non compensable losses?

113 See supra I.4(c).

(d) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

114 In general, the *Differenztheorie* applies (art 566, 2 CCP). Future damage and loss of profits are also recoverable.

115 As the Environmental Law also applies to fault liability cases, the rules described in I.4(d) shall also be taken into consideration. A clear preference for *reconstitutio in integrum* is a conclusion that can be drawn from a reading of the mentioned Law.

[51] *M. Forster/D. Lawrence*, The Cartagena Protocol: moves towards establishing an international liability regime for living modified organisms, ELM 2003, 15, 7.
[52] *H. S. Antunes* (supra fn. 31) 153.

It is probably interesting to mention the evolution of the compensation rules in the case of water pollution. Art. 73 Law-Decree 236/98, 1 August 1998, prescribed that if it is not possible to quantify the damage with accuracy, the court should decide in equity, taking into consideration the impairment of the environment as such, the predictable cost of reconstitution and the economic advantages stemming from the infringement[53]. 116

The law was revised by Law no. 58/2005, 29 December 2005[54]. Art. 95 replaces the above-mentioned rule, stating that he who causes an impairment to the state of water must bear the total costs of the necessary measures to restore it to its previous condition. 117

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

A financial limit to liability does not exist if there is fault liability. In the case of strict liability (Product Liability Act), the caps were abolished by Law-Decree 131/2001, 24 April (which amended Law-Decree 383/89, 6 November). 118

If there is contributory negligence of the victim, *vis à vis* fault of the defendant. Compensation may be reduced or even excluded (art. 570 CCP). Where the agent is liable due to a presumption of fault, the contributory negligence of the victim exempts the defendant (art. 570, 1 CCP). 119

Art. 494 CCP states that where the damage was caused with non-intentional fault the judge might reduce compensation, taking into account the degree of fault of the defendant, his and the victim's economic means and other circumstances of the case[55]. According to the traditional view, the article does not apply to strict liability. 120

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

See I.4(f). 121

(g) Which procedures apply to obtain redress in such cases?

See I.4(g). 122

[53] DR 176/98, Série I A 1 August 1998. On the scope of the article, see *H. S. Antunes* (supra fn. 31) 153, fn. 14 and *L. M. Leitão* (supra fn. 12) 37.
[54] DR 249, Série I A 29 December 2005, Law of water.
[55] *J. A. Varela*, Das Obrigações I (10th ed. 2000) 913 914.

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

123 There are no specific regulatory rules that apply generally. The Decree-Law on Compensation Funds prescribes, however, that the costs arising from sampling and testing shall be borne by the claimant (art. 9, 5).

124 In the case of general monitoring, the farmer who is obliged to monitor the environmental impact[56] bears the costs.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

125 Usually there are no agreements shifting the costs to other farmers. As far as the procedure for granting consent for the deliberate release and placing on the market of GMOs is concerned, sampling and testing costs are supported by the person interested in releasing or distributing the GMOs.

126 In the case of actual damage (see infra question 3), general tort rules apply. Portuguese case law provides a stringent rule on costs incurred to prove damage. Usually costs are not encompassed in the amount of compensation.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

127 Recoverability, in abstract, depends on the existence of actual GMO presence.

128 Where there is no actual GMO presence, it is doubtful if there is causation and damage.

129 Costs of destruction in the case of contamination due to the infringement of technical rules, according to art. 7, 4 Lugano Convention, are borne by defendants who do not obey such rules. Also the Frame Law on Environmental Administrative Measures, Law 50/2006, 29 August 2006, includes in the costs of the proceedings, the costs of testing and expertise (art. 58, 1, g).

[56] *M. M. Rocha*, A avaliação do impacto ambiental como princípio do Direito do Ambiente nos quadros internacionais e europeus (2000) and *id*., O Princípio da avaliação de impacto ambien tal, in: *M. M. Rocha* (ed.), Estudos de Direito do Ambiente (2003) 143.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no special conflict of laws rules. 130

As to (internal) jurisdictional rules, the initial version of art. 45 of the Environment Frame Law (Lei 11/87, 7 April) gave competence to judicial courts (*jurisdição comum*), setting apart administrative courts. The solution however was deemed unreasonable and hardly compatible with the constitutional recognition of administrative jurisdiction. Therefore, in the case of environmental damage caused by public authorities, the case law was clearly against the solution of excluding administrative courts. 131

With the reform of art. 45 by Law 13/2002, 19 February (*Reforma do Conten cioso administrativo*) and the new statute of administrative courts (approved by the same Law), the administrative jurisdiction depends on whether the environmental damage was caused by a public authority. 132

Some commentators have advanced the fact that administrative law is "better positioned"[57] to solve environmental conflicts. Thus, the fact that the tortfeasor is not a public authority should not immediately exclude an administrative action. 133

Recourse to private law is the solution where damage to the environment was not caused by administrative rules on environmental issues[58] or was out of the scope of protection of the infringed rule. 134

Hovewer the infringement of administrative rules might also extend to civil protection. Nuisance rules require a right *erga omnes*. The proprietor of the fields where the crops were affected might claim damages according to these rules, but the same does not apply to the lessee or other claimants. In such a case, an administrative action (even parallel to a private action based on personality rights, such as the right of personal physical integrity, or based on the rules on possession) is regarded as possible, according to some parts of the legal scholarship.[59] 135

In practice, it seems that only preventive measures can be sought in administrative courts. Amongst them is the right of *inibitoria action*, which forces the tortfeasor to stop the noxious action. The legal basis is art. 40, 4 Environmental Frame Law and art. 70, 2 CCP (in the special case of a personality-based action). 136

[57] *M. A. Almeida*, Tutela jurisdicional em matéria ambiental, in: *M. M. Rocha* (ed.), Estudos de Direito do Ambiente (2003) 81. See also *A. M. Cordeiro*, Tutela do ambiente e Direito civil, in: Direito do Ambiente (1994) 379.

[58] Law Decree on noise pollution 146/2006, 31 July DR, I Série A 146.

[59] If, of course, administrative rules were also infringed; *M. A. Almeida* (supra fn. 57) at 84, fn. 11.

2. General rules of jurisdiction and choice of law

137 International jurisdiction depends on the occurrence of one of the following circumstances:

a) if the plaintiff or some of the plaintiffs live in Portugal, except if there is a claim over immovables located abroad;
b) if there is territorial competence over the subject of the action;
c) if one of the acts was committed in Portugal;
d) if it would be too demanding to force the plaintiff to present a claim abroad or if efficacy could not be assured.

138 Portuguese courts are exclusively competent to decide actions over immovables located in Portugal (art. 65-A *Código de Processo civil*, Civil Procedure Code).

139 The Brussels Convention (1992) was applied on the matter of international jurisdiction. Now the follow-up regime of Regulation (EC) 44 (2001) governs.

140 According to the legal basis found (personality/nuisance/tort), the corresponding rule of law applies. The prevailing legal characterization consists of reporting the mentioned cases as tort law cases.

141 Therefore, according to art. 45, 1 of CCP, tort actions are dealt with under the law of the State where the main conduct that caused the damage took place. In the case of omissions, the law of the State where the action should have been held would apply.

142 If, however the law of the State where the damage took place considers there is liability, in spite of the opposite solution of the law of the country where the conduct was held, the first law applies if the wrongdoer should have foreseen that the damage could occur and that it might have occurred in that country (art. 45, 2 CCP).

143 Where the defendant and the plaintiff have the same nationality or at least live in the same country, national law or the law of their domiciliary apply, if they are occasionally abroad.

144 The option of *lex loci delicti commissi* was grounded for several reasons. First of all, it might be associated with the punitive function of tort liability. Furthermore, the solution clearly favours the recognition of judicial decisions. Finally, some other rules are inadequate (e.g. *lex patriae*). Still, the solution of *lex patriae* rules was also accepted although as a subsidiary solution.

145 The concern for foreseeability, even if it has less importance in strict liability cases, also justifies the solution presented.[60]

[60] *J. B. Machado*, Lições de Direito Internacional Privado (4th ed. 1990) 369 373; and, more recently, *N. C.-B. Bastos*, Das obrigações em regras de conflitos do Código civil, in: Comemorações dos 35 anos do Código Civil e dos 25 anos da reforma de 1977 (2006) 667 679.

According to art. 46, 1 CCP, the law applicable to property is the law of the country where the movables or immovables are located. 146

As to personality rights, national law (personal law) prevails, according to art. 27 CCP. 147

Economic Loss Caused by GMOs in Slovakia

Anton Dulak

I. Special liability or compensation regimes

1. Introduction

The rights and duties concerning users/operators of genetic technologies and GMOs are regulated by Act No. 151/2002[1], which came into effect on April 1, 2002, and was amended by Act No. 77/2005. For its implementation, Decree of the Ministry of Environment of the Slovak Republic No. 252/2002 has been adopted. While Act No. 184/2006 on genetically modified agricultural production contains no special liability provision, reference is made to the general rules of tort law in the Civil and the Commercial Code. 1

No special compensation regime for the damage resulting from the operation/use of genetic technologies and GMOs has been included in these statutory rules. GMOs used in restricted facilities and their deliberate release must be considered to be operations under § 420a of the Civil Code. Liability under § 420a is a special type of objective liability existing in any type of activity of the nature of a business operation (see explanation below). 2

The law only partially removed some uncertainty concerning liability for damage resulting from the use of GMOs. There are still some doubts, for example, regarding how to determine a claim where damage has been caused by an activity beyond those referred to as "deliberate release", or liability for damage occurring in "other than contained facilities". 3

Thus, compensation manifestly caused by genetic technologies and GMOs is governed also by some other rules and regulations. 4

The system of private law in the Slovak Republic, distinguishing between civil and commercial relations, makes similar distinctions between liability rules arising from these relations. In the absence of relevant provisions in the Commercial Code, the provisions of the Civil Code will apply. 5

[1] *V úplnom znení zákon č. 151/2002 Z.z. o používaní genetických technológií a geneticky modifikovaných organizmov.* Act No. 151/2002 on the use of genetic technologies and genetically modified organisms.

6 As far as I know, there are no other liability rules for damage caused by genetic technologies and GMOs other than those governed by the provisions of private law. In 2004, a law in support of environmental protection was adopted, under which a special Environmental Fund was established within the framework of governmental support, and its resources can also be used for the elimination of harmful events threatening or damaging the environment (§ 4 (1) (e)).

7 The Environmental Fund resources are limited to cases enumerated in § 4 of the Act. There are no statutory provisions for compensation of economic loss resulting from the use of GMOs, even though the fines imposed for a breached duty under the GMO law are paid to the Environmental Fund[2].

8 Environmental Fund resources used for elimination of the results of calamities threatening and damaging the environment are considered to be an auxiliary measure. The law also stipulates additional conditions for the use of these resources which cannot be used, e.g. in cases where the originator of a calamity is known. (§ 4 par. 6).

2. Causation

(a) What criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

9 The *conditio sine qua non* test is recognized as a standard test in establishing liability for damage in Slovakia. Even though the Slovak Civil Code does not contain provisions explicitly dealing with causality, theory and jurisprudence agree that in order to establish liability, there must be a causal relationship between the wrongful act/omission and damage objectively proven (and in cases of fault-based liability, fault has to be shown). The *conditio sine qua non* test cannot be taken as the sole applicable criteria in establishing causality.

10 Considering the foregoing, it is improbable that proof of expenses incurred in relation to the testing of any contaminated product will constitute sufficient proof of a causal relationship.

(b) How is the burden of proof distributed?

11 Liability for damage resulting from genetic technologies and GMOs in cases of contained facilities or deliberate releases is a special type of liability (strict liability). For liability to arise, the injured party/plaintiff must prove that the damage resulted from the defendant's business operations, showing the exact extent of the damage and producing evidence of a causal relationship between

[2] *Pozri novelizované ustanovenia § 29 ods. 5 zákona č. 151/2002 Z.z. o GMO*. See amended § 29 par. 5 of Act No. 151/2002 on GMOs.

the defendant's operation and the actual damage caused by such operation. All of these elements of liability must be established; their existence cannot be presumed.

The injured party may benefit from the application of § 420a of the Civil Code, as the law specifically defines what can be considered to be damage caused by the operation of a business. Under § 420a par. 2 it will be sufficient to prove that the damage has been caused by an activity of the nature of a business operation or is an instrument of a business operation. It will also suffice to prove that damage was caused to the surrounding environment by the physical, chemical or biological effects of the defendant's operations. 12

There can be multiple wrongdoers liable for the damage according to various liability regimes. The basic principle for liability of multiple wrongdoers is laid down in § 438 of the Civil Code. Such wrongdoers are liable jointly and severally. As an exemption – in justified cases only – the court may decide that those who caused the damage have individual liability for contributing to the damage. In such case the judge is obliged to explain positively why any of the multiple wrongdoers is liable individually. 13

Joint liability means that the damage has been caused either by joint activities of multiple wrongdoers or by their coincidental conduct (omissions). Joint activities mean that, without the joint acts of all the wrongdoers, the damage would not have occurred. Coincidental means that any single wrongdoer could have caused the same damage independently of other wrongdoers. 14

(c) How are problems of multiple causes handled by the regime?

Under Slovak law it is insignificant whether the liable persons are multiple wrongdoers or a single wrongdoer. The wrongdoer must be identified. In the case of multiple wrongdoers, the Civil Code establishes joint liability, and only rarely allows division of the damage[3]. 15

According to a Supreme Court decision in a criminal matter[4], each effect is the result of many causes and the real cause of the effect is the conduct in absence of which there would not be such effect. Any conduct or any circumstance may be a cause although there may be other causes and circumstances that bring about an effect. 16

According to another decision[5] in a criminal case, if the damage resulted from several causes, any such cause should be assessed with regard to its impact on the resulting effect, and its relation to other constituent causes. 17

[3] See § 438 CC.
[4] The Supreme Court of the SSR, Rt 37/1975.
[5] The Supreme Court of the SSR, Rt 72/1971.

18 Obviously the courts must always assess every cause as to its importance to the resulting effect. In such cases Luby[6] suggests the establishment of concurrent and separate liability of each wrongdoer of the damage. The injured party can claim compensation from any of the wrongdoers – only once, of course (otherwise it would be unjust enrichment).

19 As defined in the Civil Code (§ 438 sec. 1), where the damage is caused by multiple wrongdoers, their liability is joint and several. In justified cases, the court can rule that a wrongdoer is liable only in proportion to his/her fault.

20 Joint liability applies in cases of multiple wrongdoers. It is of no importance whether their contributory conduct/solidarity is based on fault-solidarity or objective-solidarity in causing damage. The main point is that an act or omission of several persons caused the damage.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

21 In cases of fault-based liability, the wrongdoer's fault is presumed and it does not have to be proved.

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

22 In cases of liability for damage caused by a business operation, the defendant can be released from liability by establishing grounds specifically set by law. The defendant must prove that the damage was caused by irreversible circumstance not originating from the business operation, or that the damage was caused by the conduct of the injured party.

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

23 See explanation above.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

24 No.

[6] See Š. Luby, Príčinná súvislost (causal relationship), Právny obzor 1953, 241 ff., 319 ff.; in: Š. Luby, Výber z diela a myšlienok, Iura Edition (1998), 382.

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime?

It is expressly provided by the GMO law that the special liability regime (§ 420a of the Civil Code) applies only in cases of damage resulting from the use of genetic technologies and GMOs in contained facilities and in cases of deliberate releases (see the above examples). In other cases, the general provisions of liability for damage will apply. A claim for compensation could be based also on the provisions of § 415 of the Civil Code, under which every person is obligated to act in a manner by which no harm to another person's health, property and no damage to nature and the environment may be caused (so-called general prevention). By violating this provision, fault-based liability can arise. 25

In cases of damage caused in contained facilities or by deliberate releases, it may be more advantageous for the injured party to seek the application of § 420a of the Civil Code, since this establishes a strict liability protection. It will be sufficient for the injured party to prove that the damage resulted from the defendant's business operation; it will be difficult to eliminate liability because of a reduced number of reasons for liability release (see above). 26

The injured party can also bring a concurrent or a resulting action upon e.g. a violation of § 415 of the GMO Act. The motive can be e.g. uncertainty in establishing the fact that the damage is causally related to the operation of genetic technologies and GMOs in contained facilities or their deliberate releases. The defendant can be relieved of liability if he/she can show that he/she did not cause any damage. 27

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described? In what way is pure economic loss handled differently to other types of losses, if at all?

Slovak private law makes a distinction between material and immaterial (moral) loss. As interpreted in judicial practice, material loss of the injured party can be objectively given in monetary value (cf. R 55/1971). The intended remedy for such loss is in the form of restitution or compensation. 28

Immaterial/non-monetary/moral loss means personal harm of the injured party. The remedy for such loss aims to reach a fair settlement/satisfaction. 29

Material loss can be actual damage/loss (damnum emergens) or lost profit (lucrum cessans). The Civil Code does not define the so-called moral loss or the difference between direct and indirect/remote losses. 30

According to established judicial practice, actual loss/damage means material loss of monetary value based on the decrease in value (reduction, destruction) 31

of the existing property of the injured party, represented by monetary amounts necessary to restore the property to its original conditions, or to compensate, in monetary terms, the consequences in cases where such restoration would be impossible or unreasonable (cf. R 27/1977, R 5/1978). The actual loss includes also the costs associated with the removal of the harmful consequences and safety arrangements.

32 A lost profit means material loss given in money, which, as opposed to the actual loss, rests upon the fact that the property of the injured person has not been increased by the amounts that could have been reasonably expected with regard to the usual course of business.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

33 A loss can either be an actual loss or lost profit. One of the elements of liability is proving the fault. The injured person (a farmer) must present the calculation of such loss. A loss representing the difference between the selling prices of non-contaminated and contaminated production could also be considered a loss. The reasons for such price differences can be the consumers' fear of contamination. The loss exists because of the decline in the existing property (actual loss), or failure to achieve the expected expansion of property (other loss).

(c) Where does the scheme draw the line between compensable and non compensable losses?

34 Compensation for material loss is possible if calculable in monetary terms (see above). The injured party must prove that as a result of a business operation his/her property has declined/decreased in value, or that the gains expected from the usual course of business have not been achieved. Most of all, proving a causal relationship between the loss and the defendant's business operation or breach of statutory duty can be quite difficult/problematic.

(d) What are the criteria for determining the amount of compensation?

35 A loss means any reduction (decrease) of property value or any failure to achieve expected growth/increase in the value of property. A loss represents monetary values that must be incurred to restore the matter to its original condition or to compensation, by moneys, for resulting consequences in cases where such restoration would be impossible or unreasonable. The failure to achieve an expected gain is also a loss. There is not enough experience in the judicial practice for the expansion of the term "material/monetary loss". It may be practically quite difficult for the injured party to prove that costs associated with his/her contaminated GMO production (e.g. looking for new markets) have been incurred.

(e) Is there a financial limit to liability?

There is no maximum limit for compensation of material loss. Setting limits in compensation for damage is exceptional in Slovak private law. 36

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

Current legislation imposes no duty on GMO operators to be covered by insurance or to contribute to funds from which the damage caused could be covered. 37

Insurance of farmers covering possible harm is not a mandatory duty set by law. 38

(g) Which procedures apply to obtain redress?

Insurance terms and conditions are governed by the relevant contract of insurance. 39

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

Relief depends on the terms and conditions of the insurance contract. 40

5. Compensation funds

(a) Are there any compensation funds already set up or planned in your country, whether public or private or a combination of both, that would provide for at least some compensation of losses of the kind covered by this study?

There are no statutory obligations to create a special fund to cover the damage caused by GMOs. The only exception is the Environmental Fund set up by law, (see above) the primary task of which is to protect the environment and not to cover economic losses resulting from GMOs. 41

(b) How are these funds financed?

Fines imposed in cases of violations of the laws on the protection of the environment form the income of the Environmental Fund. 42

6. Comparison to other specific liability or compensation regimes

There are no special rules governing liability for damage caused by GMO operators/users. By reference to the relevant provisions of the Civil Code, some 43

doubts in the application of the actual liability regime may be eliminated. Liability for damage caused by specified activities of GMO operators/users is not different from liability of other business operations (§ 420a of the Civil Code).

44 When compared to liability rules in damage caused by defective products, the fundamental difference is in the fact that liability for defective products represents a complete statutory regulation, containing specific rules concerning liable persons, damage, limitations of compensation, reasons for liability release, etc.

II. General liability or other compensation schemes

1. Introduction

45 Compensation for damage caused by GMOs is defined as a specific type of liability under § 420a of the Civil Code. This provision generally applies to all persons operating an activity in which there is an increased risk of causing possible damage.

46 Explanations concerning liability for damage under the general regime are given above. General liability means liability for fault-based conduct in which fault is presumed and need not be proved. One of the elements necessary for liability to arise is evidence proving that the wrongdoer breached a duty and that the damage resulting from his/her wrongful conduct is causally related with such wrongful conduct. The wrongdoer will be relieved of liability by proving he/she did not cause the damage.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

47 The *conditio sine qua non* test is recognized as the standard test for establishing liability for damage in Slovakia. See above.

(b) How is the burden of proof distributed?

48 See above.

(c) How are problems of multiple causes handled by the general regime?

49 See above.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

The first requirement for liability to arise is conduct contrary to the law, that is, conduct in violation of a statutory duty or a contractual obligation. A violation of law includes e.g. conduct contrary to the provisions of § 415 of the Civil Code, under which every person is obligated to act in a manner averting any damage. Liability can be based upon intentional conduct or negligence; the injured party does not have to prove how the damage has been caused, it is the defendant/wrongdoer who must prove that he/she has not caused any damage. 50

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

GMO operators have liability for any consequences that may arise from GMO usage. Strict/objective liability arises under § 420a upon the occurrence of harmful conduct resulting from the operations of a business. Such liability is based on the damage and the causal relation between the harmful conduct and the damage caused by it. 51

The key phrase is "operation of business" and its definition. The GMO law expressly provides that GMOs used in contained facilities and their deliberate releases are considered operations of business under § 420a of the Civil Code. That means that in cases of damage resulting from such operations, liability must be determined under § 420a. 52

The provisions of § 420a of the Civil Code can also apply to other cases, in which the injured party can prove that the damage was caused by the defendant's business operations. In par. 2 of § 420a damage is considered to have been caused while operating a business, if it resulted from a) an activity performed in the operation of a business, or by an instrument used in such activity, b) physical, chemical, or biological effects of a business operation in the surroundings, or c) lawful performance or the arrangement of such performance by which damage is caused to another person's real property, or which substantially impedes or prevents the use of his/her real property. 53

Operation of a business can be more widely interpreted under Slovak law than it is defined by § 420a of the Civil Code. According to the established practice, the basis of an operation of business is any organized, purposeful activity; the type of activity is not important. It is important that the activity has the nature 54

of an operation, i.e. an activity organized to achieve the fulfilment of a set purpose/aim. It is not necessary to operate an extraordinarily hazardous business (cf. § 432 of the Civil Code).

55 For a possible relief of liability under § 420a of the Civil Code to arise it must be established that the damage was caused by an unavoidable event not generated by the operation of the business, or by the conduct of the injured person himself/herself. The burden of proof will be on the wrongdoer.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

56 The Civil Code provides for the so-called "neighbour relations" in § 127. The owner of a thing must refrain from any activities that may be unreasonably annoying to another person. The aim of this provision is to protect the rights of owners of neighbouring property and not the legal relationships resulting from any damage caused.

4. Damage and remedies

(a) How is damage defined and measured? In what way is pure economic loss handled differently to other types of losses, if at all?

57 The Civil Code distinguishes between compensation of property loss and personal loss (see explanations above). The term "pure economic loss", not specifically defined in Slovak law, is covered by claims of material loss.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

58 Loss is quite precisely defined in Slovak law – a loss means a wrong that can be expressed in monetary value. It is possible to compensate only a loss occurring as a result of devaluation of existing property. A loss can also occur when, due to contamination, for example, the expected proceeds/gains could not be realized.

(c) Where does your legal system draw the line between compensable and non compensable losses?

59 See above.

(d) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

60 See above.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

See above. 61

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

No. 62

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

There are no specific rules contained in the GMO law, or any other law concerning costs associated with the testing for GMO presence in any products. 63

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

The law on GMOs imposes an obligation on the reporters/applicants of GMO products (§ 32, § 33) to carry out applicable tests. In the absence of express rules, such costs of testing are presumed to be borne by the applicant, 64

The law imposes a duty on producers to keep detailed records of GMOs introduced into the surrounding environment (§ 20). In the absence of express statutory rules, the costs of testing are presumed to be borne by the applicant. 65

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

The law does not deal with recovery of the costs relating to testing for the presence of GMOs. 66

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

At present there are no special rules governing cross-border disputes concerning compensation for damage caused by GMOs. Similarly, no legislative enactment is being prepared. In the case of a dispute containing an international element/element of conflict of laws, special provisions will apply (see the explanation below). 67

2. General rules of jurisdiction and choice of law

68 Under § 15 of the Act concerning private international law/conflict of laws[7], claims for compensation of damage, other than breaches of contractual obligations and other acts of law, are governed by the law of the locality where the damage occurred or the place where any circumstances establishing the right for compensation arose.

[7] *Zákon č. 97/1963 Zb. o medzinárodnom práve súkromnom a procesnom v znení zákona č. 158/1969 Zb., zákona č. 234/1992 Zb., zákona č. 264/1992 Zb., zákona č. 48/1996 Z.z., zákona č. 589/2003 Z.z. a zákona č. 36/2005 Z.z.* Act No. 97/1963 on Private International Law and the Rules of Procedure relating thereto as amended by Act No. 158/1969 Coll., Act No. 234/1992 Coll., Act No. 264/1992 Coll., Act No. 48/1996 Coll., Act No. 589/2003 Coll. and Act No. 36/2005 Coll.

Economic Loss Caused by GMOs in Slovenia

Rok Lampe

I. Special liability or compensation regimes

1. Introduction

The Slovenian legal system introduced a special Act on the treatment of genetically modified organisms in 2002.[1] This Act was amended in 2004.[2] The Slovenian Parliament affirmed the official text in 2005.[3] The Act on the treatment of genetically modified organisms regulates primarily administrative provisions and technical procedures regarding modifications of genetic materials.[4] The main function of the Act is to regulate releases of GMOs into the environment as well as the presentation of GMOs and products made out of GMOs to the market.[5] 1

However the Act on the treatment of genetically modified organisms is not aimed at designing a special compensation regime that would apply to liability for damage resulting from GMOs. Art. 3 foresees as a general principle ("liability principle") that every legal entity as well as a private person who performs any activities with GMOs in a closed system and illegally transmits GMOs into the environment, or launches GMO products into the market shall be criminally or tortiously liable if the damage is a result of their activities with GMOs.[6] Hence this special Act only ties responsibility for damage arising out of activities with GMOs to general provisions of criminal and tort law. 2

[1] *Zakon o ravnanju z gensko spremenjenimi organizmi ZRGSO*, Official Gazette of the Republic of Slovenia, nr. 67/02.

[2] *Zakon o spremembah in dopolnitvah Zakona o ravnanju z gensko spremenjenimi organizmi* ZRGSO A, Official Gazette of the Republic of Slovenia, nr. 73/04.

[3] The Act itself has its European source in Directives 98/81/EC, 90/219/EEC and 2001/18/EC.

[4] According to art. 2 it does not regulate the following procedures of modifications of genetic materials: mutagenesis, cell fusion of eukaryotic species cells, self cloning.

[5] Within this function, the Act does not regulate mutagenesis and cellular fusion of vegetal cells. Beside that the Act does not cover, in terms of market regulations, medicaments for use in human and veterinary medicine (which include GMOs or their combinations).

[6] "(7) Pravna ali fizična oseba, ki izvaja delo z GSO v zaprtem sistemu, namerno sprošča GSO v okolje ali daje izdelke na trg, je v primeru škode, ki je posledica njenega ravnanja z GSO, kazensko in odškodninsko odgovorna skladno z zakonom (načelo odgovornosti)."

3 The Act on the treatment of genetically modified organisms has its basis in the environmental protection clause set out in the Constitution. According to art. 72, everyone has the right in accordance with the law to a healthy living environment. This article also establishes a connection to the rules of liability for environmental damage: "The law shall establish under which conditions and to what extent a person who has damaged the living environment is obliged to provide compensation". So, according to constitutional provisions and the silence of the Act on the treatment of genetically modified organisms on a special compensation scheme, the Slovenian legal system regulates civil liability for damage resulting out of GMO activities with general tort law.

4 Beside the general liability principle, the Act also incorporates the polluter pays principle (art. 3, paragraph 8) and so-called general bioethical principle (art. 3, paragraph 3). The Act, as already mentioned, regulates GMOs primarily with administrative legal tools and tries to prevent and reduce damaging impact to the environment, especially in respect to biodiversity and public health.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

5 The Act on the treatment of genetically modified organisms does not include any special causational provisions. The link to potential causational issues can be traced for example in the obligation of the interested party to prepare a plan for potential measures taken in cases of an accident. This plan has to include:

- an evaluation of the potential risk to the environment and public health and possible consequences of an accident,
- a list of potential measures that will be taken in order to suppress the hazard as well as short and long-term consequences of an accident,
- a list of subjects that will be taken in fulfilment of the mentioned measures,
- methods and the extent of spreading information to the public and the responsible authorities in case of an accident.

6 Of course the costs of the risk evaluation plan have to be covered by the interested party. Therefore it can be presumed that in cases where the party performing the genetic modification in a closed system does not follow the foreseen plan they could be held liable for the damage occurred. The relevant link is to be traced between the duty of care, set by the plan and failure of the defendant to meet these obligations. However I have to outline that this is only a possibility that can be traced out of general tort law provisions and is not actually confirmed by court practice.

(b) How is the burden of proof distributed?

The regime according to the Act is silent on this subject matter. There are general tort law provisions in the Code of Obligations which set the standard of the reversed burden of proving fault as a general principle. The Slovenian legal system perhaps has the advantage that the reversed or shifted burden of proof is a part of the continuous legal practice since the federal Act on Obligational Relations from 1978. The reversed burden of proving fault system will be precisely discussed in the second part of the study. 7

(c) How are problems of multiple causes handled by the regime?

The only link to the liability issue is the special clause (art. 13) on the subsidiary liability of the State. This provision points out that the State is responsible for assuring measures to minimize and prevent the consequences of a damaging impact, that result from GMO activities in a closed system, or an intentional release of the GMOs into the environment, or transmission to the market. The State has two main responsibilities. The first one is to regulate and to monitor activities with GMOs and the second is to warn the public in cases where the presence of GMOs in the environment could have a damaging impact. If the State fails to meet its obligations, then the State could be held subsidiarily liable. Otherwise the Act does not include any specific rules on either causation or liability. 8

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

It can be argued that the main scope is a fault-based liability regime. However there are no special provisions regarding it. Therefore the general tort law regime is applicable. 9

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

Due to the fact that the Act on the treatment of genetically modified organisms does not define the liability regime, it might be foreseen that in some cases the strict liability theory could be applicable, especially if activities with GMOs can be regarded as dangerous or hazardous. In this case the general provisions of tort law set the strict liability regime, which will be discussed in the second part. 10

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

11 The main idea of the Act is to design a strict preventive mechanism that would enable GMOs to be spread without any control. The main monitoring body is an independent Commission on the treatment of GMOs. It consists of 17 members that ought to be professionals in natural and social sciences. The functions of the Commission are:

- to monitor the state and development regarding the treatment of GMOs,
- to adopt standpoints and views on the use of technology as well as ethical and moral dilemmas on GMO issues,
- to advise the government on GMO issues,
- to inform the public on GMO developments as well as to inform the public of their own views,
- to co-operate with related institutions.

12 Beside the Commission, the Act also establishes two boards – the Board for activities with GMOs in closed systems and the Board for the intentional spreading of GMOs into the environment and the launching of GMO products onto the market. Both of the Boards are expert groups, consisting of 7 members. Their function is to give expert opinions on administrative issues regarding activities with GMOs and to give expert opinions on GMO regulations.

13 Activities with GMOs can be classified into 3 groups:

- treatment of GMOs in a closed system,
- intentional spreading of GMOs into the environment,
- launching of GMO products onto the market.

14 All of these 3 categories follow the same structure. The interested party has to get State permission to work with GMOs. In order to get the administrative permission, the interested party has to prepare a risk assessment on his activities. This study also includes the potential impact as well as the possible consequences and proper measures for its control. The Act of course foresees detailed criteria which an interested party has to meet in order to receive the permission on activities with GMOs. The monitoring regime, once the party has received the governmental permit to work with GMOs, is again administrative. Inspection services (Market Inspection of the Republic of Slovenia) are authorized to monitor the safety of activities with GMOs in a closed system, as well as in the two other categories – the presence of GMOs in the environment as well as in the market. In all 3 categories inspection services control all the safety requirements of the GMO operator. Due to their violation, inspection services can prohibit further activities with GMOs. Penalties (set in art. 56 and 56a) for the violation of safety measures and administrative requirements by legal entities are relatively high. They differ from € 1.000.000 up to € 4.000.000.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

The Act does not distinguish between the products. 15

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

The liability regime is in the frame of general tort law provisions. As mentioned, the Act on the treatment of genetically modified organisms does not provide any special liability regime. 16

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

Only general tort law provisions are relevant in Slovenian law on this subject matter. 17

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

It can be argued that in this case proof of actual admixture is required. However neither the general nor the special regime set any special rules. 18

(c) Where does the scheme draw the line between compensable and non compensable losses?

The Act on the treatment of genetically modified organisms is silent on this question. 19

(d) What are the criteria for determining the amount of compensation?

Due to insufficiency of legal practice on this subject matter it is impossible to answer this question. There are parallel or similar cases according to which conclusions could be drawn. Beside that, the Act on the treatment of genetically modified organisms does not give any answers. 20

(e) Is there a financial limit to liability?

There is no financial limit to liability, either in the general or in the special regime. 21

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

22 Mandatory insurance is not prescribed by the Act. It seems that the legislator leaves the civil part of the potential damage to the parties. The party working with GMOs could insure his liability, although there is no insurance company to my knowledge in Slovenia that would cover this type of a risk.

(g) Which procedures apply to obtain redress?

23 The main one is the classical civil procedure which would be led according to the general compensation scheme.

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

24 Yes, art. 133 of the Code of Obligations foresees injunctive relief if the applicant shows that the activity of the defendant presents an increased risk to him, a group of persons or to the environment. In this case the defendant has to remove the source of hazard or he has to refrain from further activities that cause increased risk. This claim for injunctive relief has also been used in court practice (however very rarely) as an environmental class action claim. Therefore I would argue that this tool can be used also in cases before or after admixture has been realized.

5. Compensation funds

Are there any compensation funds already set up or planned in your country?

25 Not until now. But there were some public calls that the State should prepare a compensation model similar to the US superfund system established by CERCLA.

6. Comparison to other specific liability or compensation regimes

26 It can be argued that the regime, if we can speak at all about a special regime according to the Act on the treatment of genetically modified organisms, is a part of the general compensation scheme set out by tort law. Damage resulting out of activities with GMOs would also fall under a product liability scheme, which is also regulated by general tort law provisions. This goes especially for the 3rd category – launch of GMO products onto the market. In this case the product liability rules from the Code of Obligations could be applicable. Under this regime, the producer is liable for a hazardous product if he did not take all the appropriate measures to prevent the damage with a warning, safe packaging or some other appropriate measure.

II. General liability or other compensation schemes

1. Introduction

Although Slovenian legal practice is a *tabula rasa* concerning liability for economic damage resulting from GMO presence in traditional crops, it can be foreseen that the general frame of the existing tort law provisions would apply to such cases. 27

The crucial legal source for the compensation scheme is the Slovenian Code of Obligations (*Obligacijski zakonik*).[7] It came into force on January 1, 2002. The New Code of Obligations is the primary legal source in Slovenia that covers tort law generally, although of course not perfectly. Some special tort law provisions are to be found in special acts. The fundament principle of tort law is *neminem laedere*. The tort law provisions are set in the general part of the Code, precisely, 2nd Division of the Chapter no. II (art. 131–189). The liability arising out of contractual relations is defined in the 1st Division of the Chapter no. III (arts. 239–246). The fundamental issue of the liability arising out of torts is responsibility based on fault[8] (fault liability) with a reversed burden of proof. The Code of Obligations does not define the concept of "fault". It provides, though, that "fault" exists if the tortfeasor causes the damage intentionally or negligently.[9] Beside the fault-based theory, the Code also provides a strict liability regime for operating a hazardous activity or being responsible for a dangerous/hazardous object. Beside the general scheme, some other provisions would also be applicable, especially the product liability regime set out in the Code. Besides that are some other acts, for example the Consumer Protection Act in connection with GMO presence in the products on the market. 28

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

Slovenian tort law, like most continental legal systems, does not define or regulate causation – causality, causal link, causal connection, causal nexus *ex pressis verbis* in the Code of Obligations. Causation is rather a result of legal practice and legal doctrine. The dominant theory is the *conditio sine qua non* doctrine of causation.[10] It can be argued that this theory would be the main one 29

[7] Official Gazette of the Republic of Slovenia, nr. 83/2001, enacted on 25 October 2001, accord ing to art. 1062 entered into force on 1 January 2003. Until then, the Yugoslav Act on Obliga tion Relations from the year 1978 served as the primary legal source that regulated the Law of Obligations (contracts and torts).

[8] On the fundamental theoretical distinctions between "responsibility" and "liability", *R. Lampe*, Theoretical Aspects of Transboundary Environmental Impacts Dilemmas imposed and Criti cal Review, [2001] *Regional Contact* (RC) 15, 135 ff.

[9] Art. 131 sec. 1 and art.135 *Obligacijski zakonik* (Slovenian Code of Obligations, OZ).

[10] *B. Strohsack*, Odškodninsko pravo, Zbirka sodnih odločb in pregled literature (2nd ed. 1982) 114 ff.

regarding the causation between the economic loss and the presence of GMOs in crops.

30 Due to the fact that the Slovenian Code of Obligations does not define causality or the relevant theory of causation (it only states that causality is one of the essential elements of tortious liability[11]), legal practice addresses the issue of what the relevant theory of causality is on a case-by-case basis. Theory argues that the question whether a certain act caused another event or state which is legally recognized as damage is the crucial test of legal causation in general – this causality scheme would also be applicable in our special circumstances.[12]

(b) How is the burden of proof distributed?

31 The main applicable theory of liability arising out of a tort is fault-based with a reversed burden of proof. So, Slovenian tort law rests on this atypical model. In this system not damage, but fault (*culpa levis*) is presumed. Beside damage, essential elements of the tortious liability, according to the Code of Obligations are: illegal act, a causal link between the illegal act and damage, and a "fault responsibility" (*la faute*). If the legal action is brought because of an act based on fault, the plaintiff has to prove the illegal act, damage and the causal link between them. The defendant on the other hand has to prove that he met the required standard of the duty of care.

(c) How are problems of multiple causes handled by the general regime?

32 The Slovenian Code of Obligations does not foresee any special rules on multiple causes. It deals with the liability of multiple tortfeasors in art. 186. It sets that all participants are to be held jointly liable for damage if this damage was caused by multiple tortfeasors who acted together. An *ex lege* accomplice, inciter (instigator, agitator) or a person who assisted the tortfeasors is jointly liable for the damage. According to art. 186, joint liability is also applicable in cases when:

- the tortfeasors acted independently of each other and their contributions to the damage cannot be exactly estimated;
- there is no reasonable doubt that the damage was caused by at least one tortfeasor within a connected group of persons, although it cannot be determined by whom.

[11] *131. člen (Podlage za odgovornost). (1) Kdor povzroči drugemu škodo, jo je dolžan povrniti, če ne dokaže, da je škoda nastala brez njegove krivde.*
Art. 131 (Basis of liability) (1) A person, who causes damage to another one, ought to repair it, if he fails to prove that the damage was caused without his fault.

[12] *B. Strohsack* (supra fn. 10) 33 ff.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

33 The Code of Obligations does not define the concept of "fault". It defines, though, that "fault" exists if the tortfeasor causes the damage intentionally or negligently[13]. The secondary legal source concerning the negligence issue is the Criminal Code[14], which defines both concepts. According to the Criminal Code, "intent" means that the tortfeasor was conscious about his action and wanted to execute it ("direct intent" – *dolus directus*), whereas "indirect" intent (*eventualni naklep*, *dolus eventualis*) means that the tortfeasor was conscious that, because of his action, an illegal consequence could arise and he consented that such a consequence might arise. Beside rare decisions based on intentional fault, negligence is the other type of fault which is the *alpha* and *omega* of tort law. Slovenian tort law distinguishes between 3 categories of negligence which differentiate due to violation of the standard of care. The main standard of the duty of care is that of an "average, prudent person" or in Slovenian *dober gospodar*. This term could be translated as "prudent householder" (similar to Roman *bonus pater familias*). Violation of the burden of proof can be, as mentioned above, classified in *culpa levis*, *culpa lata* and *culpa levissima*, depending on the subjective relationship between the defendant's behaviour towards the expected duty of care. This regime becomes stricter when professional conduct is at stake. In cases of professional duties of care, single professions set rules and standards which have to be adhered to by professionals. The abstract "pattern" is no longer that of an average prudent person, but a skilled professional in a certain profession.

34 As already explained, the reversed burden of proof is designed so that the defendant proves that he met all the required standards of conduct and that he consequently acted within the required duty of care. A shifted burden of proof is hence in favour of the applicant. He is not obliged to prove the actual fault of the tortfeasor (fault is namely presumed) – it is the burden of the defendant to prove that he was not at fault, i.e. that he met the required duty of care.

35 Of course, it can be presumed that this type of burden of proof would also be applicable even where there are statutory rules defining the required conduct for GMO activities. In this case the duty of care is defined in the application of the interested party, where he has to show that he meets all the required safety standards, that he is able to use all preventive measures in the case of an accident and that the GMOs used will not have any damaging impact on the environment and to public health. These standards are then affirmed in the governmental permit on activities with GMOs. Subsequently, in cases when damage arises out of GMO activities, the operator will have to show that he met all the

[13] Art. 131 sec. 1 and art. 135 OZ.
[14] Official Gazette of the Republic of Slovenia, nr. 63/94.

required standards and acted according to the owed duty of care. In the case of hazardous activities like working with GMOs, administrative acts already try to prevent potential damage (therefore an interested party has to show that he meets all the required standards) therefore it is also more clearly stated what the required standards of care are. If our potential GMO operator fails to meet them, then he is liable for the damage that arose out of his activity.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

36 Strict liability, as liability for the damage caused by a dangerous/hazardous object or activity raising higher potential risk for the surroundings defined by the Code of Obligations, is regulated by the Code. It can also be regulated by special statutes.[15] In a legal suit brought on the grounds of strict liability, the plaintiff has to prove that the damage is a result of a "dangerous/hazardous activity" or an activity arising out of a dangerous object. The causal link is presumed *ipso iure*. The defendant could exculpate himself by proving that the causal link between the dangerous thing and an activity does not exist. The next defences are act of God, wrongful act of a third party and omission of the impaired person. The Code defines act of God as *force majeure* – an event which can not be foreseen due to the given facts.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

37 The issue of nuisance is regulated in Slovenian civil law by the Property Code, supported by the Code of Obligations. According to legal practice, both of the regimes must be used in combination so as to solve nuisance disputes. Prohibition of "environmental nuisance" or literally prohibition of "emissions" is set in the Property Code, in the chapter on "legal relations between neighbours". According to the relevant provision (art. 75, subs. 1), the property owner ought to prevent any causes in the sphere of his property that would aggravate use and enjoyment of other property "beyond such an extent" that is not customary (in a community) and to prevent any causes in the sphere of his property that (are hazardous and) could cause substantial damage. Art. 75, subs. 2 prohibits any type of nuisance with "special devices" without special private or administrative permission. Administrative procedures for special emission permissions are set out in the Act on environmental protection and other relevant administrative laws.

38 In nuisance cases the defendant can exculpate himself by proving that his activity that is interfering with the use or enjoyment of other people's property

[15] Art. 131 sec. 2 and sec. 3 OZ.

is only to an extent which is customary in the community. For example in a rural community keeping stock or running a pig farm can not be considered as a nuisance, because such smells, animal noises etc. are customary – of course, depending on the rural community. In cases where the applicant demands removal of a potentially reasonable harmful risk, the defendant can exculpate himself and continue his activity by proving that the risk is not hazardous and cannot cause substantial damage.

Therefore it can be argued that the nuisance regime is also applicable in cases where a GM crop would spread to a neighbour's crop. It is well known that once GMOs are in the environment, they interbreed with "natural" crops. 39

4. Damage and remedies

(a) How is damage defined and measured?

The Code of Obligations defines the term "damage" as loss of property (*dam num emergens*) or prevention of an increase of property (*lucrum cessans*), bodily injury, emotional distress and fear. The Code has enlarged this "traditional" definition and defines damage also as loss of reputation of a legal entity. Most likely in the discussed study the damage would be either one of the mentioned categories or a combination of them. Pure economic loss has not been handled differently to other types of losses in our legal practice. 40

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

It would be speculative to answer this question, because traditionally the applicant has to show factual damage. But perhaps there is a possibility through the new institute of damage – loss of reputation of a legal entity – for the impaired party to show for example, that he was growing organic crops for some time and customers were very satisfied with his products. Since his neighbour started with GMO crops, everyone fears that also his crop is "infected" and therefore he suffers some damage due to loss of his reputation. 41

(c) Where does your legal system draw the line between compensable and non compensable losses?

The answer was already touched on in the prior question. Loss of reputation of a legal entity could be presumably applicable in such a case. The crucial question is (it primarily deals with the first part of the question) – what standard of proof would the court require? Due to the continuous legal practice the applicant has to prove actual damage. This means that not every loss is considered compensable. So-called material loss has to be proven as *damnum emergens* or *lucrum cessans*. Loss of reputation of a legal entity on the other hand can be regarded as immaterial or personal damage. Here the applicant 42

(in our case a farmer) would not be compensated for the actual (material) loss because of the contaminated crop, but because of the (immaterial, personal) loss of reputation.

(d) What are the criteria for determining the amount of compensation in general?

43 In order to answer this question I have to sketch a hypothetical example. Let us assume that half of our applicant's crops were contaminated. The "natural" part could be sold at market price. The price for the contaminated 50% is much less than this value. Presumably we know whose crop contaminated our farmer's crop. The criteria according to our legislation would be that our farmer could be compensated only for the amount which is the difference between the market price of the "natural" crop and the price of the contaminated crop. It could be argued that in such a case only *damnum emergens* is the damage which can be compensated. The value in our hypothetical example was set by the market price in order to sketch the compensational basis. The value of the crop could also be defined by a private contract between our farmer and a buyer. In this case the amount of compensation would be the difference between the agreed price for "natural" crops and the decreased price for contaminated crops.

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

44 There is no financial limit to liability.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

45 As mentioned in the first part, mandatory insurance is not prescribed by law.

(g) Which procedures apply to obtain redress in such cases?

46 The crucial one is of course the classical civil procedure. If the parties agree, arbitration is also a potential means for the settlement of disputes.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

47 The general compensation scheme is as already discussed in this part based either on fault liability or strict liability. Both systems include a reversed burden of proof rule. In fault liability cases the applicant has to show illegality of the defendant's act, actual damage and the causal link between them. The defendant on the other hand has to prove that he acted according to the required standards and that he met the duty of care imposed on him. The abstract model is a prudent person or a prudent professional. In cases of strict liability the applicant has to show actual damage and prove that the hazardous activity or

hazardous object was in the defendant's control. The law presumes the causality between them. The defendant has to exculpate himself by proving that the damage was a result of a *force majeure*, or a result of a conduct of a third party, or as a result of contributory negligence.

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

No, there are no special rules to my knowledge concerning costs associated with sampling and testing for GMO presence – although there has to be. If we imagine a potential case where, for example, a consumer protection organization demands a certain product to be withdrawn from the market – presumably this product contains some GMOs. Who is going to pay the costs for sophisticated lab samplings? In my research I tried to get answers from the consumer protection alliance (NGO), governmental office for consumer protection as well as from the ministries of health, the environment and agriculture. None of the mentioned institutions could provide me with a satisfactory explanation. It seems that a special regulation (sub-legislative act) is being prepared which will also cover questions of costs associated with samplings and testing. 48

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

The costs would be borne primarily by the interested party who applied for the permit. He would eventually have to show that GMOs in his product do not impose a safety risk to the environment and to public health. He can show a relevant result only through sampling and testing by an expert and independent institution. Costs for these activities are contractually set by the parties. 49

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

I would presume that costs for sampling and testing could be recoverable if, for example, a consumer protection institution claimed that a certain product on the market includes GMOs. This institution would also get relevant sampling and testing which would prove actual GMO presence. If the relevant authority – Office for Nutrition by the Ministry of Health – finds that this product presents a hazard to public health and consequently prohibits the future presence of this product on the market, then the consumer protection institution could recover the costs it spent on sampling and testing. 50

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

51 The Act on the treatment of genetically modified organisms sets some administrative rules on cross-border issues. The Ministry of the Environment has, at the latest, 30 days after it receives the application for the permit, to forward the summary of the application to the competent EU authority. In accordance with the Directive 2001/18/EC (art. 11) a complete application has to be sent to the competent authority. In cases where the Ministry receives a summary of an application for the intentional release of GMOs into the environment in another Member State, it has to forward it to the Ministry of Agriculture and to the Board to get an expert opinion on the impact of particular GMOs. The Ministry then has 30 days to prepare objections and observations to the competent EU authority. Regarding civil law, rules of international private law are applicable in cross-border impact.

2. General rules of jurisdiction and choice of law

52 The Slovenian Act on International Private Law and Procedure covers the question of conflict of laws regarding tortious liability in art. 30. It sets as a general rule that the law of the State where the act was committed is applicable. But, if the law is favourable for the defendant, then the law of the State where the damage occurred has to be used. So, if a legal entity performs some GMO activities in Slovenia and these activities have cross-border impact to a legal entity in Austria, then Slovenian jurisdiction demands (of course if the applicant files a civil action in Slovenia) that the applicable law is Slovenian, because the conduct was performed in Slovenia. In cases where Austrian law would be in favour of the defendant, then Austrian law would be relevant in Slovenian courts.

Economic Loss Caused by GMOs in Spain

Miquel Martín-Casals/Albert Ruda

I. Special liability or compensation regimes

1. Introduction

Under Spanish law, the legal regime on GMOs is provided by the Act 9/2003, of 25 April, on the legal regime of the confined utilization, voluntary release and commercialisation of genetically modified organisms.[1] This Act—popularly known as the Biosecurity Act, hereafter the GMO Act—has been developed by the Government through a so-called General Regulation which was passed on 30 January 2004.[2] 1

The statutory regime is based upon the principles of prevention and precaution. Accordingly, public authorities are required to adopt any adequate measures so as to avoid any risks and reduce possible damage to human health or the environment deriving from these activities (as provided for by Art. 1). The legal provisions establish the conditions under which activities related to GMOs have to be carried out; tax obligations derived from such activities, as well as duties of surveillance and control.[3] The last Chapter of the Act (Art. 34–38) has 2

[1] Ley 9/2003, de 25 abril, *de régimen jurídico de la utilización confinada, liberación voluntaria y comercialización de organismos modificados genéticamente* (BOE no. 100, 26 April 2003, p. 16214).

[2] Real Decreto 178/2004, de 30 de enero, *por el que se aprueba el Reglamento general para el desarrollo y ejecución de la Ley 9/2003, de 25 abril, de régimen jurídico de la utilización confinada, liberación voluntaria y comercialización de organismos modificados genéticamente* (BOE no. 27, 31 January 2004, p. 4171).

[3] For an overview of these provisions see *P. R. Castro Simancas*, Los organismos modificados genéticamente, [2005] *Gestión Ambiental* 7, 1 11, especially 5 ff.; *V. Manteca Valdelande*, Sis tema de regulación de los productos modificados genéticamente, [2006] *Noticias de la Unión Europea (Noticias UE)* 253, 19 28, in particular 24 ff.; by the same author, La regulación de los transgénicos por la legislación alimentaria española, [2006] *La Ley* 1193 1198; *L. Mellado Ruiz*, Seguridad alimentaria y alimentos transgénicos: nuevas vías de integración desde el enfoque de la gestión de riesgos, [2005] *Noticias UE* 251, 23 39, at 32 ff.; and *R. Herrera Campos/M. J. Cazorla González* (eds.), Aspectos legales de la agricultura transgénica (2004). On the (essen tially identical) previous legal regime 1994, see *A. Fresno*, Aspectos jurídicos y legislativos sobre transgénicos, in: *J. Gafo* (ed.), Aspectos científicos, jurídicos y éticos de los transgénicos (2001) 69 84, and *C. de Miguel Perales*, Derecho español del medio ambiente (2nd ed. 2002)

to do with the definition of conduct which amounts to a violation of the law and sanctions applicable thereto. The last provision of the Chapter is devoted to the so-called "obligation to restore, coercive fines and subsidiary execution" (Art. 38).

3 According to this Article, a person who infringes the provisions of the Act is obliged to restore the state of affairs previous to the infraction, as well as to pay a sum in compensation for the damage caused. The amount of this sum is to be established by the Public Administration, without affecting the possibility that the Courts do so (Art. 38.1 1st par.). The Act lays down several criteria which have to be applied whenever damage is difficult to assess, namely, the theoretical cost of restitution and restoration, value of the damaged goods, cost of the project or activity which caused damage, and benefit derived from the infringing activity. These criteria may be applied as a whole or separately (Art. 38.1 2nd par). If the offender does not restore the damage according to these provisions, the Public Administration is allowed to impose an economic fine (Art. 38.2) as well as to carry out the restoration on a subsidiary basis at the offender's expenses (Art. 38.3).[4] The aforementioned Regulation merely reproduces these provisions in a literal manner (Art. 64). This is in keeping with the provision of the Spanish Constitution according to which the public authorities have a duty to safeguard the rational use of natural resources, with the aim of protecting and improving the quality of life as well as defending and restoring the environment (Art. 45.2). Accordingly, the Constitution adds, the legislature will establish an obligation to compensate for environmental damage (Art. 45.3).

4 However, neither the Act nor the Regulation grant private parties legal standing to claim compensation for damage suffered by them as a result of activities involving GMOs. Instead, a sort of public law system or mechanism is established, where only the Public Administration is entitled by the Act to proceed against the person who infringes the statutory regime. According to this approach, the main responsibility for controlling and avoiding technological risks seems to be borne mainly by the Public Administration through administrative inspections and audits.[5] This may be done either by the Spanish central Public Administration or by the Administration of those autonomous regions (*Comunidades autónomas*) which have assumed the competence with regard to agriculture and stockbreeding. This is the case of Catalonia, where the new Statute of Autonomy 2006 explicitly attributes the competence on seeds and,

262 266. See also *E. Marín Palma*, Nueva regulación de organismos modificados genética mente, [2002] *Vida Rural* 12, 38 40. However, these authors pay very little attention, if any, to compensation issues.

[4] Many other statutes lay down similar provisions with regard to protection of the environment. For further references see for instance *M. Calvo Charro*, Sanciones medioambientales (1999) 153.

[5] See *M. R. Corripio Gil-Delgado/M. del C. Fernández Díez*, La evolución del marco jurídico e institucional europeo de la bioseguridad: principios y objetivos, [2005] *Noticias UE* 244, 9 26, at 21. Also, from a critical point of view, *Castro* (supra note 3) 11.

in particular, "everything related to GMOs" to the autonomous public administration in Catalonia (Art. 116.1.e).[6] It is also the case of Andalusia. A rule similar to the Catalan one can be found in the new Statute of Autonomy of this community (Art. 48.3.a)).[7]

This position is in accordance with the approach generally adopted by Spanish environmental law, which usually entrusts to the Public Administration the mission of safeguarding the environment and making the polluter pay. However, this approach entails the risk that the Public Administration adopts a passive stance with regard to damage and that its inactivity or slackness fosters further environmental degradation.[8] Moreover, it has been criticised by some legal scholars that there is a shortage of specialised officers in the Public Administration with regard to environmental issues and that punitive administrative procedures usually have a long and winding processing which too often either ends too late or gives rise to derisorily low sanctions—provided that they are not reversed on formality grounds by the courts.[9] 5

To prevent part of these problems from occurring, the Spanish Parliament passed a new Act on the rights of access to information, public participation and access to justice in environmental matters,[10] which incorporates the Convention on access to information, public participation in decision-making and access to justice in environmental matters, signed in Aarhus on 25 June 1998,[11] into Spanish law. Pursuant to this Act, information concerning GMOs is to be considered as environmental information (Art. 2.3.a)). Therefore, a right is granted to participate "in an effective and real way" in the administrative procedures on the concession of authorisations on the prevention and control of pollution and on the concession of administrative licences regulated by the legislation on GMOs (Art. 3.2.b)). Accordingly, a public action is provided for by the Act. Therefore, if an action or omission of the Administration infringes environmental regulations on public information and participation or environmental legislation in the terms provided for by this Act, any person will be entitled to ask for its judicial revision (Art. 3.3.b)). 6

[6] Llei orgànica 6/2006, de 19 de juliol, *de reforma de l'Estatut d'Autonomia de Catalunya* (DOGC no. 4680, of 20 July 2006, p. 31875 31904; BOE no. 172, of 20 July 2006, p. 27269 27310).

[7] Ley Orgánica 2/2007, de 19 marzo, *de reforma del Estatuto de Autonomía para Andalucía* (BOE no. 68, of 20 March 2007, p. 11871).

[8] As *M. J. Santos Morón*, Notas a la Propuesta de Directiva sobre responsabilidad ambiental en relación con la prevención y reparación de daños ambientales, [2002] *Gestión Ambiental* 47, 17 26, 24, rightly stresses.

[9] See *M. García Cobaleda*, Libro Verde sobre responsabilidad civil ambiental, [2000] *Gestión Ambiental* 19, 14 20, 15 and 19, according to whom "the existing system of administrative sanctions is particularly inoperative".

[10] Ley 27/2006, de 18 de Julio, *por la que se regulan los derechos de acceso a la información, de participación pública y de acceso a la justicia en materia de medio ambiente* (BOE no. 171, of 18 July 2006, p. 27109 27123).

[11] It can be found on the website of the United Nations Economic Commission for Europe: <http://unece.org/env/pp/treatytext.htm>.

7 As a matter of fact, there does not seem to be any case law concerning claims in tort for damage caused by GMOs. The most similar thing that the authors of this report could find are a couple of criminal decisions from minor courts relating to damage to a firm producing GMOs caused by environmental activists in the course of a protest campaign.[12] The activists—and "Greenpeace España" organization, of which they were members, on a subsidiary basis—were sentenced to pay compensation for damage caused to the facilities of the firm as well as for having had to stop its production. The courts rejected their argument that they were acting under a state of necessity—since, they argued, production of GM material puts biodiversity at risk and has unforeseeable effects on the ecosystems.

8 Interestingly, the Act does not distinguish between damage to private assets and damage to public property or other goods. The normative reference to the restoration of the state of affairs prior to the damage seems rather imprecise.[13] Moreover, although in theory sanctions and liability in tort are different inasmuch as they pursue different aims—punishment in one case, compensation in the other—in practice it is too often difficult to say where restoration of damaged goods finishes and economic sanctions begin.[14] Therefore, it could be questioned whether damage to private interests falls under the legal regime described or not. On the one hand, the scope of the liability regime would be seriously restricted if damage to private parties were excluded. On the other hand, in the lack of an explicit rule, claims by private parties should be the object of a private legal procedure, where the power to decide exerted by the Public Administration is out of place.[15] As some authors have pointed out, the possibility that the Public Administration intervenes when compensation for damage to private parties is at stake could be objected to, since this would amount to an inadmissible "publification" of relationships *inter privatos*.[16] This could even amount to a violation of the Spanish Constitution (Art. 117.3), in as far as the principle of exclusivity of jurisdiction—according to which only the courts are allowed to define the content of private rights—would be ignored.[17] At any rate, the statutory regime described above does not deprive private parties of the possibility of bringing a claim in tort against the person who causes damage to them.

[12] See Sentencia de la Audiencia Provincial [SAP] Murcia, Section 5th, 3.5.2005 [JUR 2005\217705] and SAP Murcia, Section 5th, 10.12.2005 [JUR 2005\39086].

[13] Similarly, see *L. Mellado Ruiz*, Derecho de la biotecnología vegetal (2002) 339, with reference to the previous Act, but the same can be said about the present one.

[14] As *I. Pemán Gavín*, El sistema sancionador español (2000) at 86, points out.

[15] See *E. García de Enterría/T.-R. Fernández*, Curso de Derecho administrativo, II (9th ed. 2004) 201 and *J. A. Santamaría Pastor*, Principios de Derecho administrativo, II (3rd ed. 2002) 401.

[16] See *E. Cordero Lobato*, La liquidación de daños entre particulares en el procedimiento ad ministrativo, [2003] *InDret* 2, 5 <www.indret.com>; by the same author, Derecho de daños y medio ambiente, in: *L. Ortega Álvarez* (ed.), Lecciones de Derecho del medio ambiente (2nd ed. 2000) 450; see also *S. González-Varas Ibáñez*, La reparación de los daños causados a la Administración (1998) 335; *J. Conde Antequera*, El deber jurídico de restauración ambiental (2004) 85 and *B. Lozano Cutanda*, La responsabilidad por daños ambientales, [2005] *Justicia administrativa* 26, 5 33, 8.

[17] So, *J. Garberí Llobregat*, El procedimiento administrativo sancionador (1994) 118.

9 Apart from the rules referred to above, the Spanish Government has tried to introduce a new legal regime on the so-called "coexistence", i.e., the regulatory norm which is expected to define under which conditions genetically modified crops may coexist with non-modified ones. Initially, the Ministry of Agriculture presented two drafts,[18] with the aim of providing a legal framework concerning GMO farming, but they were withdrawn after many ecologist and agricultural organizations fiercely criticized them. Among other arguments against the ministerial proposals, it was argued by their opponents that: a) the new regime would legalise transgenic pollution instead of protecting ecological farming; therefore, it would fail to protect the right of traditional farmers not to suffer so-called "genetic pollution", and b) no legal rules on the compensation issues were provided. In particular, these organizations have understated the need for pollution liability for damage caused by GMOs as one of the minimal conditions to be met by any legal regime on so-called coexistence of GMOs and ecological agriculture, in conformity with the polluter-pays principle. According to these organizations, damage should be defined as pollution even if it is under the threshold of 0.9% of the yield and should cover both pollution of crops and environmental harm.[19] Otherwise, they add, the holders of an authorisation who release GMOs to the environment would not be accountable for "damage to the environment, social damage and economic damage".[20] Later, in July 2005, the Ministry of Agriculture, Fishing and Food and the Ministry of Environment jointly presented several new drafts of a Royal Decree on coexistence. Again, they established no rules on tort liability.[21]

10 The last text which to our knowledge has been discussed—a draft of a Royal Decree on security fringes or coexistence between different kinds of crops, presented by both Ministries on 9 June 2006—seems to follow the same lines and also no specific rules for liability in tort are foreseen. Therefore, ecological groups and several agricultural organizations have once again raised their voices against it.[22]

11 It was expected that the Spanish government would deal with these liability issues in a separate statute on seeds. The new Seeds Act has indeed been passed but it refers to other aspects of GMOs only.[23] In particular, it lays down special rules concerning registration of seeds in a public Registry (Art. 4.3), administrative authorisation of their commercialisation (Art. 8.3 and 9.3), duration of the registration (Art. 22), tolerance thresholds in connection with the adventi-

[18] Dated 25 February 2004 <www.tierra.org/transgenicos/pdf/Coexistencia borrador04 02.pdf> and 14 December 2004 <www.tierra.org/transgenicos/pdf/Coexistencia borrador04 12.pdf>.

[19] See the document titled Consideraciones básicas a incluir en las normas españolas sobre co existencia entre cultivos modificados genéticamente, cultivos convencionales y ecológicos <www.ecologistasenaccion.org/IMG/pdf/Doc_minimos_consenso.pdf>, p. 4 and 8.

[20] See the manifesto, dated April 2004, published in the Internet by "Ecologistas en acción": <www.ecologistasenaccion.org/IMG/pdf/informe_coexistencia.pdf>.

[21] Some of these drafts can be found in the Internet: see <www.coextra.eu/pdf/report576.pdf> and <www.agrodigital.com/images/ogm.pdf>.

[22] See the piece of news published by *La Vanguardia* 24 June 2006, 36.

[23] Ley 30/2006, de 26 julio, *de semillas* (BOE no. 178, 27 July 2006, p. 28165).

tious presence of GMOs (to be established by a regulation, Art. 27.e)), labelling (Art. 31.6) and liability before the Public Administration for breaches of this Act (Art. 58). In keeping with the criteria referred to above, tort liability is explicitly left aside (Art. 57). In the meantime, it seems that traditional farmers affected by GMO pollution simply do not file any claims in tort although indeed serious pollution of this kind seems to have taken place in some regions.[24] In fact, the first study which has been carried out in Spain on cross-fertilization between *Bt* and conventional maize in real situations of coexistence in two regions in which *Bt* and conventional maize were cultivated has confirmed the risks of cross-fertilization when a security distance of at least 20 metres is not observed and flowering time is fully synchronous.[25]

12 By contrast, liability rules could be found in a draft statute prepared by the Spanish Ministry of the Environment in 1999, under the title of draft bill of the Act on tort liability derived from activities with environmental impact. This draft was never officially published but only discussed in restricted meetings and presented in a conference on environmental law in Barcelona.[26] It was allegedly based on the polluter-pays principle and attempted to adapt into Spanish law the Convention of the Council of Europe on civil liability for damage resulting from activities dangerous to the environment, signed at Lugano on 21 June 1993.[27] The draft laid down a strict liability regime (Art. 3.1) applicable to damage caused by any activities included in a list, among which activities of confined utilisation, voluntary release and commercialisation of GMOs were to be found (Annex, par. 6.9). Since the Ministry left aside this text after it realized that a European Community regime on environmental liability was going to be passed, this draft is not going to be analysed in this report. However, it can be underlined that damage discussed by the questionnaire would be compensable according to the draft, since its definition of compensable damage was very broad. In particular, it included any damage caused to any person or public body as a result of an activity with environmental impact. Nonetheless, for liability to be established it was required that damage was caused through an "environmental element", i.e., that the environment functioned as a transmitter means of the damaging effects of the behaviour of the liable party (Art. 2.b)).

[24] Especially in Aragon and Catalonia, according to information published by Greenpeace: <www.greenpeace.org/raw/content/espana/reports/resumen del informe la imposi.pdf> p. 13 ff. See also the Joint declaration against coexistence, issued at the Conference on "genetic pollution" held in Sevilla in November 2007 by several ecologist organizations: <http://www.redsemillas.info/?p 314>.

[25] See *J. Messeguer/G. Peñas/J. Ballester/M. Bas/J. Serra/J. Salvia/M. Palaudelmàs/E. Melé*, Pollen mediated gene flow in maize in real situations of coexistence, [2006] *Plant Biotechnology Journal* 4, 633 645.

[26] On the draft see [1996] *Información de Medio Ambiente* 46, 6 7; *P. Poveda Gómez*, La respon sabilidad civil derivada de actividades con incidencia ambiental, [1997] *Revista de la Asociación de Derecho Ambiental Español* 1, 85 88; by the same author, La reparación de los daños ambientales mediante instrumentos de responsabilidad civil, [1998] *Información de Medio Ambiente* 68, 2 4.

[27] The text can be found at <http//conventions.coe.int/Treaty/EN/Treaties/Html/150.htm>.

13 In connection with this, there is still another text to be mentioned, namely, the Act on environmental liability[28], which incorporates into Spanish law the Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage[29]. Obviously, the new Act follows the criteria set down by the Directive, which, as is well known, includes environmental damage caused by GMOs to some species and habitats, water and soil, under certain conditions (Art. 2), but does not grant private parties any right to claim compensation for the damage they suffer as a consequence of environmental influences (Art. 3.3) and allows the Member States to lay down a development risk defence, which, since it could have important effects with regard to GMOs, has already been criticised by some legal scholars.[30] In spite of the fact that the Directive provides that its rules are a mere minimum and that the Member States may go further by strengthening its provisions, the Spanish legislature has not done so with regard to damage discussed by the present questionnaire. Instead, it has chosen to follow the model of a public law mechanism of damage compensation laid down by the Directive, where the Public Administration plays the main role to have environmental damage restored. Specifically, the new Act establishes that confined utilization – including the transportation – of genetically modified micro-organisms, in accordance with the definition laid down by the GMO Act, is one of the activities included in the scope of the environmental liability regime (Annex III, par. 11). However, individuals are not allowed to file a claim on the basis of the new Act (Art. 5), but only the public authorities are.[31] This leaves claims by traditional farmers outside its scope of application. To be doubly sure, the Additional Provision no. 4 of the Act provides that non-environmental damage caused to crops due to the liberation of GMOs will be compensated for according to private law legislation.

14 Finally, there are other legal provisions referring to GMOs indirectly related to the issue dealt with by the questionnaire. For instance, the new Act on the Environment of Andalusia includes the risk created by GMOs as an "emerging environmental risk", together with electronic radiation and nanotechnology. Accordingly, it creates a Scientific Committee to study these risks.[32] In Cantabria, the new Act on Integrated Environmental Control,[33] excludes GMOs as a substance in the legal sense (art. 2.m)). Therefore, the introduction of GMOs into the environment may not be considered as a form of pollution (Art. 2.c))

[28] Ley 26/2007, de 23 de octubre, *de responsabilidad medioambiental* (BOE no. 255, of 24 Octo ber 2007, p. 43229 43250).

[29] Official Journal L 143 of 30 April 2004.

[30] See for instance *Lozano* (supra note 16) 31. Also supporting liability in this cases *Vattier* (infra note 37) 70.

[31] See *A. Ruda*, El daño ecológico puro (2008) and Comentario a la Sentencia de 28 de enero de 2004, [2006] *Cuadernos Civitas de Jurisprudencia Civil* (CCJC) 71, 695 744.

[32] Disposición adicional 5ª of the Ley del Parlamento de Andalucía 7/2007, *de medio ambiente* (Boletín Oficial de la Junta de Andalucía no. 143, 20 July 2007, p. 4).

[33] Ley del Parlamento de Cantabria 17/2006, de 11 diciembre, *de control ambiental integrado* (Boletín Oficial de Cantabria no. 243, of 21 December 2006, p. 15203).

falling under this Act. The same happens in the case of the Act of Aragon on environmental protection,[34] which also excludes GMOs from the legal concept of substance (Art. 4.ff)).

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

15 The GMO Act does not lay down any rule concerning causation. It actually seems to give the Public Administration much leeway, in the sense that it may establish the causal link according to what it finds appropriate and it is the liable party who can challenge this before the courts. No reference is made to testing costs either.

16 Moreover, the Environmental Liability Act establishes that every cost justified by the need to apply the Act in an adequate and effective way in the presence of environmental damage or threat of environmental damage, its amount disregarded, may be recovered by the public authorities. In particular, the new legal regime refers to the costs of preventative measures, measures adopted to prevent further damage from occurring and measures to restore damage. Moreover, it includes damage assessment costs and the costs of the assessment of imminent threats of environmental damage occurring, as well as costs involved in obtaining all pertinent data and those addressed at ensuring the activities of supervision and following up. Among these costs, the provision adds that administrative and legal costs will be included, as well as the costs of material and technical activities required to carry out the actions referred to (Art. 2,21).

(b) How is the burden of proof distributed?

17 The GMO Act does not refer to these aspects at all. Nothing similar to a presumption of the causal link such as the one to be found in the German *Gen technikgesetz* (§ 32) is provided for by existing Spanish law with regard to damage caused by GMOs. Though, it may be noted that legal scholarship has frequently pointed out the difficulties of proving the causal link in cases similar to the one discussed by the questionnaire and, in general, with reference to environmental torts. These difficulties are due mainly to the fact that the claimant does not know the circumstances under which the defendant is carrying out his activity. For this reason, some scholars have supported the idea that

[34] Ley de las Cortes de Aragón 7/2006, de 22 junio, *de protección ambiental de Aragón* (Boletín Oficial Aragón no. 81, 17 July 2006, p. 9819; correction of errors no. 106, 13 September 2006, p. 11905).

the legislature establishes a new regime on environmental torts, which includes a statutory presumption of the causal link.[35]

Perhaps because of the influence of these authors, the Environmental Liability Act now lays down a presumption of the causal link. According to it, it will be rebuttably presumed that a professional activity has caused damage or the imminent threat of damage whenever this activity is appropriate to have caused it, according to its intrinsic nature or the form in which it has been carried out (Art. 3.1 2nd par.). Also the already mentioned 1999 draft bill which followed the lines of the Lugano Convention included a presumption of the causal link framed according to the model of the German *Umwelthaftungsgesetz* (§ 6).[36] 18

However, it must also be taken into account that the statutory regime on the civil procedure already provides for the possibility for the judge to consider that the causal link has been proven on the basis of a presumption, i.e. a judicial presumption or *praesumptio hominis*. It is only required that a precise and direct link between the admitted or proven fact and the presumed fact exists according to the so-called rules of the human criterion (Art. 386.1 of the Civil Procedure Act [LEC]).[37] This may make a statutory presumption an unnecessary innovation.[38] 19

(c) How are problems of multiple causes handled by the regime?

The GMO Act does not refer to these issues either. Therefore, general doctrines on liability as defined by other Acts on public law subjects apply. Nonetheless, it still seems unclear which regime is applicable to liability of a plurality of people who infringe public law. Although according to many statutes joint and several liability has become the applicable rule in these cases, legal scholarship points out that the situation is still somewhat confused.[39] The solution may be eased by the application of the rule established by the Act on the legal regime of public administration and general procedure (LRJAP).[40] Within the Chapter 20

[35] See among others *A. Cabanillas Sánchez*, La responsabilidad por inmisiones y daños ambien tales, [1995] *Revista de Derecho Ambiental* 15, 31 49, 46; *M. Cárcaba Fernández*, Defensa civil del medio ambiente, [1999] *Revista de Derecho Urbanístico y Medio Ambiente* [*RDUyMA*] 171, 141 183, 173 and *G. Díez-Picazo Giménez*, ¿Es oportuno elaborar una ley de respon sabilidad civil medioambiental?, [1998] *La Ley* 1889 1906, 1899.

[36] See *J. Esteve Pardo*, Derecho del medio ambiente (2005) 111.

[37] Ley 1/2000, de 7 de enero, *de Enjuiciamiento Civil* (BOE no. 7, of 8 January 2000, 575 728). According to *J. Esteve Pardo* (supra note 36) 112, and *C. Vattier Fuenzalida*, La responsabi lidad civil por alimentos defectuosos, in: *P. de Pablo Contreras/Á. Sánchez Hernández* (eds.), IX Congreso nacional de Derecho agrario. Régimen jurídico de la seguridad y calidad de la producción agraria (2002) 59 71, 62, case law has applied such a presumption in many cases.

[38] In this sense see *M. J. Santos Morón*, Acerca de la tutela civil del medio ambiente: algunas reflexiones críticas, in: *A. Cabanillas et alii* (eds.), Estudios jurídicos en homenaje al Profesor Luis Díez Picazo, III (2003) 3015 3037, 3020.

[39] See *A. Nieto*, Derecho administrativo sancionador (2nd ed. 1994) 372 and 376 and *A. Carretero Pérez/A. Carretero Sánchez*, Derecho administrativo sancionador (2nd ed. 1995) 152.

[40] Ley 30/1992, de 26 de noviembre, *de régimen jurídico de las Administraciones Públicas y del procedimiento administrativo común* (BOE no. 285, of 27 November 1992).

of this Act devoted to defining the sanctioning power of the Public Administration, there is a rule which, under the heading of "[l]iability", establishes that liability under public law derived from the sanctioning procedure is compatible with the requirement that the offender restores the situation altered by him to its previous condition, as well as with the compensation for damage caused, as determined by the administrative organ in charge (Art. 130.2). Moreover, if the fulfillment of the obligations established by a legal provision concerns several people in a joint way (*conjuntamente*), they will be solidarily, i.e. jointly and severally liable (Art. 130.3). The provision seems applicable whenever a plurality of persons infringes the law together, i.e., in a joint way.[41] An identical rule can be found in the Act on Seeds, but with reference to liability derived from the violation of its provisions (Art. 58.1 2nd part). However, legal scholarship commenting on the LRJAP suggests that it is doubtful that joint and several liability applies in such a broad range of instances.[42] As regards the Environmental Liability Act, the liability of a plurality of tortfeasors for the same damage is separate, not solidary, except if the law provides otherwise (Art. 11). Finally, the possibility that one of the liable persons recoups internally from the others is not explicitly established by any of these Acts but derives from the general rules on joint and several liability as provided for by the Spanish Civil Code (Art. 1145).

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

21 The GMO Act does not make any reference to fault as a condition for tort liability to be established. However, fault is a condition for the imposition of the sanctions corresponding to the administrative infractions defined by the Act. Similarly, the Act on Seeds establishes that liability for the violation of its provisions will arise even in case of "simple negligence" (Art. 58.1). In these cases, the standard of care is defined with reference to the personal circumstances of each person, such as whether this person has a skill or enjoys an education that is above-average, the environment where he lives, the degree of proximity to the illicit act regarding its usual activities, and, above all, his occupation.[43] Certainly, the conditions for the application of the rules imposing sanctions are not necessarily the same as the conditions that must be met in order to give rise to the duty to restore the damage established by the Act. However, legal scholars seem to leave in the dark the question of whether or not fault is required to give rise to the duty to restore the damage established in the GMO Act and other public law Acts.[44] In any case, it could seem para-

[41] So *Nieto* (supra note 39) 377.

[42] *García de Enterría/Fernández* (supra note 15) 180, even suggest that the rule may infringe the Constitution. Though, the liability of a plurality of public administrations is joint and several. See *Esteve* (supra note 36) 102.

[43] For further details see *Nieto* (supra note 39) 347 348. See also *Miguel* (supra note 3) 271.

[44] See for instance *García de Enterría/Fernández* (supra note 15) 200 ff.

doxical to require fault as a condition for the duty to restore established under the GMO Act to arise whereas under the general rules of tort liability—as will be explained below—fault may not be required. The legal regime on liability according to public law may still be considered unclear due to the ambiguity of the existing provisions.[45]

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

The GMO Act and the Act on Seeds do not deal with defences to liability. It may be assumed that general doctrines on defences, such as *force majeure*, intervention of a third party and contributory negligence apply. 22

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

The existing mechanism has been described above. 23

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

See above for the answer to question (b). 24

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

The mechanism of liability relating to the duty to restore laid down by public law statutes such as the GMO Act does not affect the possibility of a private victim bringing a claim before a private law court. As a matter of fact, several liability regimes may concur in a single case. Therefore, in the case dealt with by the questionnaire, traditional farmers may both ask the Public Administration to intervene against the person who infringes the provisions of the GMO Act and ask for compensation for any damage they suffer as a result of the admixture of GM and non-GM crops before a court of justice, simultaneously or subsequently. The administrative sanctions established by this Act do not affect either liability in tort or criminal liability.[46] 25

With regard to the Environmental Liability Act, a novelty is that it explicitly establishes that its provisions leave the rights of the private parties suffering environmental damage unaffected (Art. 5.1) and tries to prevent a double recovery from occurring (in line with what the Directive itself had already suggested, Art. 16.2). With this aim, it establishes that the affected parties will not be able to bring a claim for compensation for damage inasmuch as this damage 26

[45] In this sense see *Santamaría* (supra note 15) 401.

[46] See *J. M. Mora Sánchez*, Biotecnología vegetal: un enfoque legal, in: *E. Iáñez Pareja* (ed.), Plantas transgénicas: de la Ciencia al Derecho (2002) 193 244, 231.

has already been compensated according to the provisions of the Act (Art. 5.2 1st part). If the liable party has had to pay compensation twice, he will be entitled to claim the compensation back from the victim (Art. 5.2 2nd part). Moreover, claims by private parties will not affect the effectiveness of the preventive or restoration measures adopted according to its provisions as well as any administrative procedures or any other administrative measures aiming at prevention or restoration of damage (Art. 5.3).

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

27 As has been shown, the existing legal regime does not cover damage suffered by traditional farmers and does not handle pure economic loss differently from other kinds of damage either.

28 As a matter of fact, Spanish tort law is neither familiar with a separate category of "pure economic loss", nor does the concept itself appear in Spanish legal writing dealing with tort law. The concept of pure economic loss itself and its assumptions are alien to the Spanish approach to tort law and there is no *prima facie* limitation on the nature or on the scope of the protected rights or interests. Therefore, Spanish courts resort to other legal devices in order to keep the floodgates shut. These are usually related to the "damage" element, in the sense that damage suffered by the victim has to be certain and sufficiently proved, or the "causation" element, in the sense that the causal link between the conduct of the tortfeasor and the resulting damage has to be established.[47] In most cases where in other legal systems it is affirmed that there should be no compensation for pure economic loss, Spanish courts consider that damage or causation have not been established.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

29 None of these issues are dealt with in an explicit manner by the GMO Act. As for general rules, see below.

(c) Where does the scheme draw the line between compensable and non compensable losses?

30 The GMO Act merely refers to damage, without defining it. As has been explained, it has to be understood that only damage to property belonging to the Public Administration is covered by the statutory regime, inasmuch as damage to private interests is governed by tort liability rules described below.

[47] See *M. Martín-Casals/J. Ribot*, Spain, in: *W. H. van Boom/H. Koziol/Ch. A. Witting* (eds.), Pure Economic Loss (2004) 62 76, in particular 62 63.

(d) What are the criteria for determining the amount of compensation?

The GMO Act provides for several criteria to assess damage economically whenever damage is difficult to assess, namely, the theoretical cost of restitution and restoration, value of the damaged goods, cost of the project or activity which caused damage, and benefit derived from the infringing activity (Art. 38.1 2nd par). 31

This is also not an original legal regime, since the criteria at stake are the same, usually referred to by other statutes which lay down a similar duty to restore damage. So, for instance, the criteria taken into account by the Act on Seeds in order to determine the amount of the fine in the case of a violation of its provisions are the degree of fault, the nature and extent of the loss caused, the amount of the illicit benefit which was obtained or could have been obtained, the previous record of the infringer, and the breach of previous warnings, and damage or risk to the human health, animal healthiness or the environment (Art. 66). In general terms, it may be very difficult to establish the parameters needed to apply these criteria, such as the benefit obtained by the liable party. For this reason, and due to the lack of a more detailed legal regime, the Public Administration has often tried to deprive the liable party from any possible benefit deriving from the infringing activity by increasing the amount of the economic fine corresponding to the statutory violation. As some authors put it, the fine functions in these cases as a sort of compensation, so in a certain sense it has the archaic flavour of a composition or taxation of damage, according to the model of the ancient Germanic law.[48] 32

Apart from this, it is usually sufficient that the Public Administration follows a technical criterion when assessing damage and that it provides an explanation for the reasons upon which its decision is based. As legal scholarship has observed, the assessment of damage is discretionary, although this must not be necessarily understood as arbitrary.[49] Of course, the liable person may well disagree with the assessment made by the Public Administration, and the general legal rules on administrative procedure grant him the possibility to challenge it before the administrative courts.[50] 33

[48] See *García de Enterría/Fernández* (supra note 15) 200 201. It has also been suggested that these difficulties may discourage the Administration from using the means provided for by the statutory regime. See *Esteve* (supra note 36) 54.

[49] See *F. Delgado Piqueras*, Derecho de aguas y medio ambiente (1992) 247; *D. J. Vera Jurado*, La disciplina ambiental de las actividades industriales (1994) 204; *J. Jordano Fraga*, La responsabilidad por daños ambientales: Los daños ambientales son la lesión del derecho subjetivo a disfrutar de un medio ambiente adecuado, in: CIMA (ed.), I Congreso Nacional de Derecho Ambiental. Sevilla, Abril 1995 (1996) 463 472, 466 467; by the same author, La protección del derecho a un medio ambiente adecuado (1995) 514 515.

[50] See *Garberí* (supra note 17) 119.

(e) Is there a financial limit to liability?

34 No.

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

35 In both cases the answer is no.

(g) Which procedures apply to obtain redress?

36 According to the nature of the liability mechanism provided by the GMO Act, the procedure is an administrative one, which is governed by the general rules of the law on the legal regime of public administration and general procedure (in particular, Art. 130 LRJAP). The obligation to restore damage may be established in the same administrative decision which imposes a sanction upon the offender for the infringement of the statutory provisions or in a separate administrative decision. The sanction and the duty to compensate are compatible and it is usually pointed out that the principle of *non bis in idem* is not violated by the mere fact that the liable party is forced to compensate for the damage in addition to pay a fine or whatever sanction he receives.[51]

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

37 The GMO Act establishes that after a sanctioning administrative procedure has started, the Public Administration in charge will be entitled to adopt any of the following provisional measures: a) the provisional, total or partial closure, suspension or stoppage of the facilities; b) the provisional suspension of the authorization to carry out the activity; the immobilisation of the GMO or the products which contain them, and finally c) any other measures aiming at the correction, security or control which prevent the production of damage from continuing (Art. 37). A very similar rule can be found in the Act on Seeds, including two paragraphs identical to paragraphs a) and b) of the GMO Act already referred to, plus two additional paragraphs, namely, c) the immobilisation of the vegetal material and d) the seizure of the documents which are indispensable and duly related (Art. 68).

5. Compensation funds

38 The GMO Act provides for no compensation fund. The only compensation fund now in operation is the *Consorcio de Compensación de Seguros,* an autonomous entity under the supervision of the Ministry of Economy and Fi-

[51] See *Santamaría* (supra note 15) 401.

nances, which has to compensate for personal injury and property damage in certain cases where compensation cannot be achieved by ordinary means. Its intervention is only envisaged within the framework of certain compulsory insurances imposed by strict liability acts, such as the one referring to liability for damage caused by motor accidents.[52]

Now, the Environmental Liability Act has broadened the operative scope of the *Consorcio* by creating a Fund for the Compensation of Environmental Damage (Art. 33). Such a Fund will be managed by the *Consorcio* and nourished by the contributions of the operators who conclude an insurance contract to provide a security in connection with their liabilities according to this Act (Art. 33.1). However, as has been said, the farmers would lack legal standing to file a claim against the Fund on the basis of this Act since only the public authority is entitled to proceed in the case of environmental damage. 39

6. Comparison to other specific liability or compensation regimes

The legal regime provided for by the GMO Act is hardly comparable to the existing regime on damage caused by defective product. They not only differ in the degree of detail, the most detailed one being that provided by the Product Liability Act (LRPD),[53] now replaced by the Revised text of the Consumer Protection Act[54] (Art. 135–146), but they also belong to different kinds of mechanisms: whereas in the first case it is the Public Administration which is entitled to intervene in the presence of a violation of the law, the legal regime on product liability provides private parties a right to bring a claim in tort before a court of justice. It is therefore not possible to say whether the GMO Act is an exception or not: it simply opts for a different model due to the fact that damage covered is damage to the interests of the Public Administration, as explained above. 40

II. General liability or other compensation schemes

1. Introduction

In the absence of a specific legal regime covering claims from private parties because of economic damage resulting from GMO presence in traditional crops, the general regime of liability established by the Spanish Civil Code would be applicable. This comprises, on the one hand, the general rule of liability based on fault (Art. 1902) and, on the other hand, different rules regarding several instances of damage governed by strict liability rules. 41

[52] See *M. Martín-Casals/J. Ribot/J. Solé*, Compensation for Personal Injury in Spain, in: *B.A. Koch/H. Koziol* (eds.), Compensation for Personal Injury in a Comparative Perspective (2003) 238 292, 254.

[53] Ley 22/1994, de 6 de julio, *de Responsabilidad civil por daños causados por productos defectuosos* (BOE no. 161, of 7 July 1994).

[54] Real Decreto Legislativo 1/2007, de 16 de noviembre, *por el que se aprueba el texto refundido de la Ley General para la Defensa de los Consumidores y Usuarios y otras leyes complementarias* (BOE no. 287, of 30 November 2007, p. 49181 49215).

42 As for fault liability, Spanish tort law starts from fault as the basic requirement for establishing liability. According to Art. 1902 CC, "the person who by action or omission causes damage to another by fault or negligence is obliged to repair the damage caused".[55] However, as has been said, cases of strict liability are also found in the Code.

43 As regards strict liability, the possibility of applying the strict liability rule pursuant to Art. 1905 CC could be considered if a genetically modified animal has caused damage. According to this provision, the possessor of an animal or the person who is making use of it is liable for damage caused by it, even where it has escaped or got lost. Liability will cease only if the damage derives from *force majeure* or fault of the victim. This liability rule does not distinguish between domestic and non-domestic animals and embraces all animals as long as they can be an object of possession.[56] However, some authors consider that damage caused by organisms such as bacilli, whose energy is not important enough with regard to the risk they cause, should fall outside of the scope of the rule. Moreover, they argue, nobody would say that bacilli are animals in the sense of this provision[57] and probably not even in a modern scientific sense. Leaving bacilli aside, it seems that even very small animals may be a source of significant damage. Certainly, no liability claims for damage caused by GMOs seem to have been based on Art. 1905 CC to date. With regard to crops, damage is typically caused by non-GMO animals—such as sheep or horses—which unduly pasture crops belonging to the victim.[58] However, in theory nothing prevents the liability rule laid down by Art. 1905 CC from being applied to damage caused by genetically modified animals in other instances as well.[59]

44 Another possibility consists in framing a claim under Art. 1908 of the Civil Code. This provision provides for several rules of liability, some of which are related to the kind of damage discussed by the questionnaire. In particular, Art. 1908.1 and 4 CC refer to damage caused by industrial facilities and activities potentially dangerous or noxious. As regards the later provision, it establishes a liability rule of the owner for leaks of sewers or deposits of infectious substances "which have been built without the precautions that were adequate for the place where they were located". The peculiarity of this rule, in contrast to the general rule laid down by Art. 1902 CC, is that, according to legal scholarship, this provision establishes fault liability, but fault is presumed because of the risk that has been created. Therefore, it is added, the burden of proof

[55] See *Martín-Casals/Ribot/Solé* (supra note 52) 242.

[56] See *Martín-Casals/Ribot/Solé*, Spain, in: *B.A. Koch/H. Koziol* (eds.), Unification of Tort Law: Strict Liability (2002) 298, and *I. Gallego Domínguez*, Responsabilidad civil extracontractual por daños causados por animales (1997) 25, with further references.

[57] See the annotations by *B. Pérez González/J. Alguer* to the translation of the book by *L. Ennecerus/H. Lehmann*, Derecho de obligaciones, vol. 2, 2nd part (3rd ed. 1966) 1186.

[58] For further references see *C. Trabado Álvarez*, La responsabilidad civil del artículo 1905 del CC (2001) 125 and *Gallego* (supra note 56) 115 note 226.

[59] See *A. Ruda* (supra note 31) 251.

of fault is shifted to the owner.[60] Also Art. 1908.2 covers damage caused by excessive fumes which affect persons or property. In this case, liability does not require fault. It is well-established in case law that this rule lays down a strict liability regime, this being an interpretation which is shared by most legal scholars.[61]

Moreover, Art. 1908 is constructed in a very broad way by legal scholarship. 45
First, because it is interpreted that persons other than the "owner" may also be held liable. This is the case, for instance, of the entrepreneur who carries out his entrepreneurial activity in facilities which cause harm to the victim.[62] Second, and more interestingly, this article has been understood as a sort of limited general clause which may be extended so as to be the basis of liability for damage caused in ways different to those referred to literally by the text of the provision. For instance, it has been the basis for liability for damage caused by noise[63] and electromagnetic radiation,[64] as well as damage caused by vibrations and even other solid or liquid bodies.[65] This construction has been supported by the Spanish Supreme Court, according to which Art. 1908.4 CC can be interpreted in a broad way, so as to include any kind of perturbation and aggression to the environment (STS [*Sentencia del Tribunal Supremo*] 14.3.2005 [RJ 2005/2236]). This has an important consequence, since, as this decision points out, liability for nuisance has become strict under Spanish law for this reason.[66]

It may also be questioned whether damage as described by the questionnaire 46
could be recoverable according to the special legal regime on product liability. Obviously, the conditions laid down by such a regime should be met. In particular, it has to be taken into account that pecuniary damage deriving from the presence of GMOs in traditional agricultural products, as described by the questionnaire, will fall out of the scope of application of the special liability regime laid down by the rules on product liability. Indeed, damage to goods used for carrying out an entrepreneurial or professional activity is not cov-

[60] See *Martín-Casals/Ribot/Solé* (supra note 56) 286, with further references.

[61] So, for instance, *L. Díez-Picazo/A. Gullón Ballesteros*, Sistema de Derecho civil II (9th ed. 2002) 572 and *M. del C. Sánchez-Friera González*, La responsabilidad civil del empresario por deterioro del medio ambiente (1994) 74.

[62] See *A. Hernández Gil*, Las relaciones de vecindad en el Código Civil, in his: Obras completas, IV (1989) 89 173, 167 and *E. Algarra Prats*, Responsabilidad civil por daños causados por inmisiones en el Código Civil español y la protección frente a humos, ruidos, olores y similares perturbaciones entre vecinos, in: *J. A. Moreno Martínez* (ed.), Perfiles de la responsabilidad civil en el nuevo milenio (2000) 637 644, 642.

[63] SAP Valencia, Section 7, 26.3.2004 [*Ar. Civ*. 2004/890].

[64] SAP Alicante Section. 4, 15.3.2002 [JUR 2002/140080]; SAP Segovia 28.5.1993 [*Ar. Civ*. 1993/957] and SAP Granada, Section 1, 8.2.1990 [*RGD* 1991, 8447 8451].

[65] SAP Baleares, Section 5, 21.2.2005 [JUR 2005/118262]. In legal scholarship, see among others *C. Auger Liñán*, Problemática de la responsabilidad civil en materia ambiental, [1988] *Poder Judicial* special no. IV, *Jornadas sobre el Medio ambiente,* 111 123, 116 and *M. Alonso Pérez*, Las relaciones de vecindad, [1983] *ADC* 357 396, 389 note 69.

[66] See among others *Miguel* (supra note 3) 357 and *Ruda* (supra note 31) 409.

ered by the special liability regime, but only damage to things for private use or consumption is (Art. 10.1 LRPD and Art. 129.1 of the Revised Consumer Protection Act). As a result of this restriction, it seems that most instances of damage to crops caused by defective products will be excluded from this regime.[67]

47 Moreover, liability according to the Product Liability Act will be excluded in all the cases where one of the defences of liability it provides becomes applicable, such as, in particular, that the producer did not put the product into circulation (as laid down by Art. 6.1.a) LRPD and Art. 140.1.a) of the Revised Consumer Protection Act). If the admixture of GM crops and traditional crops did not result from the commercialisation of GMOs, but rather from the process of production itself—for instance, because of the proximity of GM crops—it cannot be said that the producer put the product into circulation in the legal sense. The reason is that he has not voluntarily transferred possession of the GMO with the aim of introducing the product in the channels of distribution or, in general terms, of commercialising the product.[68] Also there are other persons different from the producer whose conduct may have an influence on the causation of damage, such as the farmer, but the special legal regime on product liability does not make any reference thereto.[69] Finally, it seems doubtful whether a GM crop can be considered defective in a legal sense (Art. 3 LRPD, Art. 137 of the Revised Consumer Protection Act) on the mere basis that it may produce an admixture of GM and traditional crops. Leaving aside that it is not enough for excluding liability that the transformation of an agricultural product has not been the cause of the defect,[70] a GMO product may as a matter of fact present the safety which may be rightfully expected from it and still be defective. The mere fact that it is dangerous, in the sense that it may cause economic damage to traditional farmers, does not necessarily mean that the product is defective, since GMOs may be inevitably or intrinsically dangerous, which would exclude the applicability of the Product Liability Act.[71]

[67] On the LRPD see *S. Rodríguez Llamas*, Régimen de responsabilidad civil por productos defec tuosos, (2nd ed. 2002) 189, with references to previous case law. See also the case analysed by *P. Gutiérrez Santiago*, Responsabilidad civil por productos defectuosos. Cuestiones prácticas (2004) 79 80, where the court refused to grant compensation for damage caused to crops by defective seed.

[68] On this interpretation of the expression "put into circulation" see *J. Solé Feliu*, El concepto de defecto de producto en la responsabilidad civil del fabricante (1997) 263 ff. and *M. Martín-Casals/J. Solé Feliu*, La responsabilidad por productos defectuosos: Un intento de armoniza ción a través de directivas, in: *S. Cámara Lapuente* (ed.), Derecho Privado europeo (2003) 921 948 at 923. It is also adopted by *M. Ruiz Muñoz*, Derecho europeo de la responsabilidad civil del fabricante (2004) 60.

[69] See *L. Amat Escandell/D. Llombart Bosch*, La defensa de los consumidores y la responsabili dad civil por productos alimentarios defectuosos, in: *Pablo/Sánchez* (supra note 37) 125 132, 131.

[70] As *D. Jiménez Liébana*, Responsabilidad civil: daños causados por productos defectuosos (1998) 218, has correctly pointed out.

[71] See again *Solé* (supra note 68) 383 ff. and, following his interpretation, *Gutiérrez* (supra note 67) 83 84.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

A causal link between the conduct of the defendant and the resulting damage is clearly a condition for liability to be established in tort under Spanish law. However, this is one of the conditions of liability which has given rise to more disagreement in legal scholarship. 48

Over recent years, Spanish scholars have emphasised the need to draw a distinction between causation understood as a question of fact and legal causation. It thereby tries to overcome the difficulties which the application of the equivalence of conditions or equivalence theory (causation in fact) gives rise to. Following German legal doctrine, some Spanish legal scholars suggest a correction of this theory by introducing criteria which would allow for greater precision in indicating which events causally linked to the behaviour of the defendant—from the point of view of the equivalence theory—can be legally imputed to him (i.e., causation as a question of law or objective imputation [*objektive Zurechnung*]).[72] 49

Among these criteria, the most salient one, and the most referred to by Spanish courts, is adequate causation, which until very recently the courts considered to be opposed to the *conditio sine qua non* or theory of the equivalence of conditions.[73] According to the criterion of adequate causation, the behaviour of a person is the cause of damage if it is apt in general to cause a result such as the one it has produced or increased in a significant way the risk that damage might occur. Therefore, it is not possible to attribute in an objective way a particular damaging event to the behaviour of the defendant when the production of such an event would have been discarded, as extraordinarily improbable, by an experienced observer.[74] As case law has put it, establishing the causal link according to the theory of adequacy requires an assessment of "whether the conduct of the defendant is appropriate for bringing about a certain and specific result".[75] So, for instance, the fact there is a flux and filtration of liquid waste from the pond of the defendant is considered an adequate cause of damage suffered by the victim due to the pollution of his fresh water well (STS 11.10.1994 [RJ 1994\7478]). Therefore, the claimant farmers would have to 50

[72] See *F. Pantaleón Prieto*, Causalidad e imputación objetiva: criterios de imputación, in: *Asociación de Profesores de Derecho Civil* (ed.), Centenario del Código Civil, II (1990) 1561 1591, 1561 ff.

[73] See *Jordi Ribot/Albert Ruda*, Spain, in: *B. Winiger/H. Koziol/B.A. Koch/R. Zimmermann* (eds.), Essential Cases on Natural Causation (2007) 42. However, the distinction between "causalidad física" (causation in fact) and "causalidad jurídica" (causation in law) proposed by scholarship has taken root in the Spanish Supreme Court (see for instance STS 26.1.2007 [RJ 2007\1873], 7.5.2007\3553) and 17.5.2007 [RJ 2007\3542], among many others).

[74] See *Pantaleón* (supra note 72) 1563 and *E. Roca Trias*, Derecho de daños (4th ed. 2003) 155.

[75] Among others, STS 8.7.1998 [RJ 1998\5544], 9.10.1999 [RJ 1999\7245], 25.2.2000 [RJ 2000\1017], 27.6.2005 [RJ 2005\4438] and 9.2.2007 [RJ 2007\986].

prove that the damage they suffered is an adequate consequence of the behaviour of the defendant.

(b) How is the burden of proof distributed?

51 The burden of proof of the causal link rests on the claimant and courts do not reverse the burden of proof in this area. Such a general inversion of the burden of proof would be against the provisions of the Civil Procedure Act, which follow the well-known criterion that *incumbit probatio ei qui dicit, non ei qui negat* (Art. 217.2 and 3 LEC) as a general rule.[76]

52 Nevertheless, it has to be taken into account that this Act has introduced an interesting innovation in this area. It allows the judge to shift the burden of proof in a particular case whenever the defendant may prove the absence of causal link more easily than would the claimant prove its existence, inasmuch as the defendant is nearer to what some legal scholars call the source of proof (Art. 217.6 LEC). It seems, however, that the Spanish Supreme Court has not had the occasion to apply this rule to damage dealt with by this questionnaire yet.[77] For the moment case law has merely stated that this rule has to do with a so-called principle of proximity to the sources of evidence. Accordingly, the burden of proof may be shifted to the defendant provided that it is better placed to bring evidence on the case (see STS 20.1.2003 [RJ 2003\350], in a case concerning a stock market commission contract). Anyway, the rule would perhaps be difficult to apply in cases of damage caused by GMOs, since the rule starts from the idea that proof is easier for the defendant than it is for the victim. It may happen that the cause of damage is equally uncertain for both parties, as neither of them is able to explain how damage was exactly caused. Probably the courts would require, for the burden of proof to be shifted, some kind of piece of circumstantial evidence showing that the defendant caused damage, or that it would be ordinary according to the principle of normality to deduce such a thing having taken the circumstances of the case into account.[78] So, for instance, a decision from a Court of Appeal rejected to reverse the burden of proof of the causal link because the claimant had not brought any evidence showing that the defendant caused damage to him through, for instance, acid rain (SAP Barcelona, Section 13th, 6.9.2004 [JUR 2004\307091]).

(c) How are problems of multiple causes handled by the general regime?

53 When damage has been caused by a plurality of tortfeasors, Spanish courts usually follow the rule that if there is not enough evidence to enable them to identify the specific respective share of liability of each tortfeasor, all of

[76] See against such an inversion *A. Cabanillas Sánchez*, La reparación de los daños al medio am biente (1996) 178.

[77] On this provision in general see *G. Ormazábal Sánchez*, Carga de la prueba y sociedad de riesgo (2005) 23 and 35 38.

[78] See *I. Tapia Fernández*, Artículo 217, in: *F. Cordón Moreno/J. J. Muerza Esparza/T. Armenta Deu/I. Tapia Fernández*, Comentarios a la Ley de enjuiciamiento Civil I (2001) 788.

them are held jointly and severally liable (among many, STS 21.6.1999 [RJ 1999\4889] and 11.4.2000 [RJ 2000\2148]). The joint and several liability rule applies also, without any hesitation, in the case of accumulative causal courses (or "concurrent", in the terminology of the Spanish Supreme Court), i.e., those cases in which "two causal courses of different origin contribute simultaneously to the production of the damaging event when any of the two would have been sufficient to produce it with the same characteristics and in the same circumstances" (STS 18.6.1998 [RJ 1998\5066] and 7.11.2000 [RJ 2000\9911]).

54 Actually, joint and several liability seems to have become the general rule whenever damage is caused by a plurality of tortfeasors.[79] Indeed, special legislation in the field of tort law usually establishes that liability of a plurality of tortfeasors will be joint and several[80] and this is also the rule laid down by the Criminal Code (CP),[81] which regulates liability in tort derived from crime separately from the Civil Code (Art. 116.2 and 212 CP). Pursuant to Art. 116.2 CP, "if two or more persons are responsible for a crime or a misdemeanour, the judge or the Court will establish the share of liability that corresponds to each of them" and once this has been established, and according to the second subsection of this provision, "the authors and the accomplices, each of them within his respective group, will be jointly and severally liable among them for their respective shares, and liable on a subsidiary basis for the shares corresponding to the other persons held responsible". However, some legal scholars have criticised that joint and several liability is applied in situations where the tortfeasors may have contributed in a very different degree to causing damage.[82]

55 In spite of this, some scholars consider that joint and several liability in the case of indeterminate defendants could also be based as a matter of principle on those special provisions.[83] In fact, Spanish tort law lacks a general regime on the issue posed by the indeterminate defendant or alternative causation situation, where damage is caused by an undefined member of a group. Because of this, case law has played a major role in developing this field of the law. It is mainly in this field that the doctrine of "improper joint and several liability" has developed, purporting the application of joint and several liability whenever the degree to which several tortfeasors contributed to the damage is uncertain, as already explained. Specific tort law statutes do not usually refer to this situation either, nor does the Civil Code. Nevertheless, one may find a very clear rule in Art. 33.5, 2nd part of

[79] For further detail see *M. Martín-Casals/J. Solé*, Multiple Tortfeasors under Spanish Law, in: *W. V. H. Rogers* (ed.), Unification of Tort Law: Multiple Tortfeasors (2004) 189 213.

[80] For instance see Art. 27.2 of the Ley 26/1984, de 19 de julio, *general para la defensa de los consumidores y usuarios,* (Consumers Act [LGDCU], BOE no. 175 and 176, 24 July 1984) and Art. 7 LRPD.

[81] Ley Orgánica 10/1995, de 23 de noviembre, *del Código Penal* (BOE no. 281, of 24 November 1995).

[82] See for instance, with reference to food security, *G. de Castro Vítores*, Tendencias actuales en material de seguridad alimentaria, y su repercusión en obligaciones y responsabilidades, *Pablo/Sánchez* (supra note 37) 179 188, 187.

[83] See *L. Díez-Picazo Ponce de León*, Derecho de daños (1999) 167 and *F. Peña López*, in: *R. Bercovitz* (ed.), Comentarios al Código Civil (2001) 2124.

the Spanish Hunting Act,[84] pursuant to which "in the case of hunting with weapons, if the author of the personal injury is not known, all members of the hunting party shall be jointly and severally liable." Without quoting it, a similar tenet has been applied in a nuisance law case, where both the installation owner and the technician in charge of an industrial facility were held jointly and severally liable for the excessive emission of gas and dust which had caused harm to the neighbouring property (STS 15.3.1993 [RJ 1993\2284]). Nevertheless, the legal basis for this solution still remains uncertain, because it does not seem possible to construe the rule established by the Hunting Act so as to include so different a case as damage caused by nuisance and at any rate that Act lays down a strict liability regime which cannot be extended by way of an analogical interpretation.[85]

56 Lately, the Supreme Court has rejected a claim based on what the Court calls "hypothetical alternative causation" because the claimant had not proved that one of the defendants had caused damage, which was the result of fire of unknown origin (STS 26.11.2003 [RJ 2003\8354]). Although technical concepts are used by the decision in a non-technical way, the Court is right in that none of the defendants had been proved to have behaved wrongfully.[86] Therefore, it seems that as a rule there is liability of each of the members of the group when one of its members caused the damage, provided that the claimant proves that damage was caused by one of them. Other more innovative approaches such as market share liability or pollution share liability are ignored by Courts and rejected by legal scholars, who find them difficult to reconcile with the principles of Spanish tort law and to apply in any particular case.[87]

57 As regards channelling of liability, it has already been explained that there is no specific liability regime concerning environmental damage but Courts have resorted to Art. 1908 CC to cope with problems derived from nuisance. Also, the liable party may be the "owner", as explicitly referred to by the provision, but this term can be construed in a broad way. Therefore, there is no channelling of liability upon the operator or license holder under this provision. As regards Art. 1902 CC, any person who causes damage in a negligent way is obliged to compensate it, with no restrictions.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

58 Since the Spanish Civil Code neither provides any definition of fault nor establishes what its conditions are, Spanish legal scholarship agrees that

[84] Ley 1/1970, de 4 de abril, *de caza* (BOE no. 82, of 6 April 1970).

[85] See *A. Ruda*, Spanish case note, [2004] *European Review of Private Law* 2, 245 258, with further references.

[86] See the comment on this decision by *M. Martín Casals/A. Ruda*, [2004] *CCJC* 65, 843 859.

[87] So for instance *A. Ruda*, La responsabilidad por cuota de mercado a juicio, [2003] *InDret* 3, <www.indret.com> Working Paper no. 147, 13 ff.

Art. 1104 CC, referring to fault as a factor of imputation for breach of a contract, also applies to fault liability in tort.[88] Accordingly, it is generally stated that fault amounts to acting in a negligent, careless, improvident way.[89] Foreseeability of the result is the main and most characteristic element of fault, which is connected in a direct way with a different element, the standard of care, which makes the assessment of fault possible. A person who does not foresee something which he or she has the duty to foresee or, having foreseen it, does not take the appropriate steps to avoid it is negligent.[90] A precondition of foreseeability and the standard of care is the tortious capacity of the tortfeasor. He must be capable of committing fault (*capaz de culpa civil*), which implies that, at least, he must possess the capacity to understand what damaging others means.[91]

Fault as a condition of liability will not pose any serious problems to traditional farmers, as the decisions of the Spanish courts have evolved to what has been called an "objectivization" of fault liability. This process, initiated in the 1950s, has used several technical devices such as: a) requiring a higher standard of care in certain activities; b) extending the scope of fault to embrace also the slightest negligence (*in lege Aquilia et culpa levissima venit*); c) considering that compliance with administrative regulations is not sufficient to show the standard of care required, or d) reversing systematically—and with only a few exceptions, such as in the area of medical malpractice—the burden of proof.[92] In this context, the mere fact that there are clearly established statutory rules defining the required conduct for GMO agriculture does not seem decisive. 59

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

Legal scholarship speaks about strict rather than absolute liability, in situations where the defendant is liable without fault for the mere causation of damage, but he still has some possibility of escaping liability if he proves the occurrence of some circumstance. So, Art. 1905 CC admits the possibility that the possessor of an animal escapes liability when damage is attributable to *force majeure* or fault of the victim. Art. 1908.2 CC refers to damage caused by noxious fumes and, although it is not expressly mentioned, it is interpreted that it also admits *force majeure* as a cause of exoneration.[93] 60

[88] See *M. Martín-Casals/J. Solé Feliu*, Fault under Spanish Law, in: *P. Widmer* (ed.), Unification of Tort Law: Fault (2005) 227 264, 237, with further references.
[89] *F. Rivero Hernández*, in: *J. L. Lacruz Berdejo et al*. (eds.), Elementos de Derecho civil, II 2 (3rd ed. 2005) 447 448.
[90] See *Rivero* (supra note 89) 448 and *Martín-Casals/Solé* (supra note 88) 238.
[91] For further details see *Martín-Casals/Ribot/Solé* (supra note 52) 243.
[92] See *Martín-Casals/Solé* (supra note 88) 228 ff.
[93] So *Martín-Casals/Ribot/Solé* (supra note 56) 287.

61 Under Spanish law, there is no general clause of strict liability for damage caused by things or by activities that are especially hazardous. Only very isolated *obiter dicta* of some decisions—which have not been followed by the courts—have stated that the idea of risk could lead to strict liability even when not established in an explicit way by the legislature. Courts have not carried out an analogical application of strict liability either, although in practice they carry out an extensive construction of the elements of fact of some provisions imposing strict liability, such as Art. 1908.2 CC.[94]

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

62 Apart from Art. 1908 CC, which has already been referred to, there is no general legal regime on nuisance law applicable to all the territories of Spain. As a matter of fact, case law has construed a general doctrine of liability for damage resulting from nuisance starting from that provision and Art. 590 CC on the relationships of neighbourhood. Pursuant to Art. 590 CC, in the absence of regulations, every person has to adopt all necessary precautions to avoid any damage to the neighbouring estates or buildings. According to legal scholarship, the provision aims at establishing a prohibition to propagate substances harmful or dangerous for the neighbouring pieces of land.[95]

63 By contrast, regional law provides for several legal regimes on nuisance, in particular in Catalonia and Navarra. Catalan law has just been reformed after the Catalan Parliament passed Book V of the Catalan Civil Code (CCC).[96] The Code relies upon the legal regime previously existing, i.e., the Nuisance Act (LANISRV).[97] This Act not only provided a legal regime of injunctive relief (*acció de cessació*) but also of a claim for compensation (*acció d'indemnització,* Art. 2.2) which legal scholarship has considered as being independent from the general clause of Art. 1902 of the Spanish Civil Code and therefore not requiring fault on the side of the defendant.[98] Moreover, the limitation period to claim damages is longer under the Catalan Act (3 years, pursuant to Art. 544-7.2 and 546-14.7 CCC)[99] than under the Spanish Civil Code (1 year, pursuant to Art. 1902 and 1968.2 CC).[100]

[94] See *Martín-Casals/Ribot/Solé* (supra note 52) 251.

[95] See *N. Álvarez Lata*, El daño ambiental. Presente y futuro de su reparación (II), [2002] *Revista de Derecho Privado* 865 888, 865, with further references.

[96] Llei 5/2006, de 10 de maig, *del llibre cinquè del Codi civil de Catalunya, relatiu als drets reals* (DOGC no. 4640, 24 May 2005).

[97] Llei 13/1990, de 9 de juliol, *de l'acció negatòria, les immissions, les servituds i les relacions de veïnatge* (DOGC no. 1319, 18 July 1990). The text in Catalan can be found at the legal data base of the "Projecte Norma Civil", by the Department of Private Law of the University of Girona: <http://civil.udg.edu/normacivil/cat/Reals/L13 90.htm>.

[98] See *E. Roca Trias*, El dret de propietat, in: *L. Puig Ferriol/E. Roca Trias* (eds.), Institucions del Dret civil de Catalunya IV (2007) 309.

[99] The period has been shortened, since it was 5 years according to Art. 2.5 Nuisance Act.

[100] See *J. Egea Fernández*, Acción negatoria, inmisiones y defensa de la propiedad (1994) 56 58 and 191.

64 The Catalan Civil Code does not define what amounts to nuisance, but merely lays down its effects from a legal point of view. The previous Act did not do it either, but this had been criticised by legal scholars, who argued that a clear definition would avoid confusion as to what nuisance, in the sense of perturbation or emission ("immissió" in Catalan) is. After having taken into account the concept of nuisance used by public law, nuisance in the sense of private law may be defined as an interference of either physical or immaterial substances on a piece of land which the neighbouring owner carries out on a repeated basis in the use of the faculties or powers which derive from his ownership of land.[101] The Code now makes reference to perturbations consisting of smoke, noise, gas, vapour, smells, heat, trembling, electromagnetic radiation and light and any other similar perturbations (Art. 546-13 CCC). Probably, interference produced by GMOs would fit into such a broad definition in as far as the composition of the traditional crops becomes changed by the presence of GMOs in them. Also, although both the Nuisance Act and the Code only refer to the protection of the "owner" of the affected land, it had already been accepted by legal scholarship that this term may be understood in a broad sense to include the co-owner and other people who have a more limited right or interest in the land, such as usufructuaries or users, among others.[102]

65 Nonetheless, it has to be taken into account that not every nuisance coming from a neighbouring property entitles the affected owner to make use of the remedies provided by the Act. First, the owner must tolerate innocuous perturbation and perturbations which cause non-substantial harm to the land. To decide whether harm is substantial or not, the Code takes into account whether the harm exceeds the limits or maximum values or the indicative values established by the statutes or regulations (Art. 546-14.1 2nd part CCC), so it has abandoned the criterion followed by the Nuisance Act, which took into account economic criteria related to the exploitation of the land (Art. 3.2 LANISRV). In these cases, the affected owner does not have any remedy—not even an action in tort—against such a nuisance. Moreover, this makes a difference compared to Spanish law, since the victim would be in a worse condition under Catalan law in comparison to the regime of the Spanish Civil Code. Legal scholarship has already sharply criticised the provisions of the Nuisance Act, since the victim should be entitled to claim compensation at least when the interferences caused substantial harm to his health.[103]

66 Second, the victim has to tolerate the nuisance which causes substantial losses if they are a result of the normal use of the neighbouring land, according to

[101] See *M. E. Lauroba Lacasa*, El dret de propietat, in: *F. Badosa Coll* (ed.), Manual de Dret civil català (2003) 349.

[102] See *Lauroba* (supra note 101) 352.

[103] See the convincing remarks by *Egea* (supra note 100) 119 120; by the same author, Relaciones de vecindad, desarrollo industrial y medio ambiente, in: *J. Esteve Pardo* (ed.), Derecho del medio ambiente y Administración local (1996) 63 97, 89 90; later, see also *Mª del R. Díaz Romero*, La protección jurídico civil de la propiedad frente a las inmisiones (2003) 107 and 119.

the local custom, according to the regulations, and putting an end to the activity that produces the perturbation entails disproportionate financial costs (Art. 546-14.2 CCC). Again, this may be a problem for traditional farmers from regions where most crops are genetically modified. Nevertheless, they are allowed to adopt any measures to mitigate the harm, and the resulting expenses will be paid by the neighbouring owner (Art. 546-14.4 *in fine*; Art. 3.3 LANISRV). In this case, the owner suffering the nuisance has a right to compensation for past harm and also for harm which could occur in the future, if nuisance exaggeratedly affects the product of the land or its normal use, according to the local custom (Art. 546-14.3 CCC and Art. 3.4 LANISRV). In so doing, Catalan law imports the criterion of "normal use according to the local custom" (*ortsübliche Benutzung*) established by the German Civil Code (§ 906 BGB). At any rate, the claim of compensation provided for by the Catalan law does not depend on whether the victim has a proprietary interest in the land, since the link with property is only taken into account by the legislature to define who can ask for injunctive relief.[104]

67 As to the law of Navarra, any "owner and user" of the land is entitled to sue another person in nuisance (Ley 367 of the Compilación Foral de Navarra).[105] The rule is constructed as if any neighbour could sue another person who causes nuisance independently of the interest the claimant has on the affected land.[106] In any case, it does not seem necessary that nuisance affects an adjoining piece of land in order to establish liability or ask for an injunction. Thus it seems that this regime also allows traditional farmers to bring a claim in tort in the terms described by the questionnaire. However, in contrast with what happens under both Spanish and Catalan law, such liability requires fault of the defendant.[107]

4. Damage and remedies

(a) How is damage defined and measured?

68 In the first place, damage to the crops is damage to property. Therefore, following the general rules, the victim can choose between compensation in kind and compensation in money. In this second case, according to the principle of full compensation, the award of damages must be the exact translation of the utility which the thing lost had for the claimant as the aim is to place him in a situation which is as similar as possible to that existing prior to when the damage was caused.[108] According to the same criteria, when compensation in kind is still possible, the victim will be entitled to claim for the thing being repaired, even

[104] See again, with regard to the Nuisance Act, *Egea* (supra note 100) 117.
[105] Ley 1/1973, de 1 de marzo, *por la que se aprueba la Compilación del Derecho Civil Foral de Navarra, o Fuero Nuevo de Navarra* (BOE no. 57, 7 March 1973).
[106] See *F. J. Díaz Brito*, El límite de tolerancia en las inmisiones y relaciones de vecindad (1999) 45.
[107] See *T. Hualde Manso*, Las inmisiones en el Derecho Navarro (2004) 233.
[108] See *Á. Carrasco Perera*, in: *M. Albaladejo* (ed.), Comentarios al Código Civil y Compilaciones Forales, XV 1 (1989) com. Art. 1106 CC, 682.

if the repair costs exceed the market value of the thing—although not if restoration is too burdensome having regard to the damage that has been caused.[109]

The damage actually sustained by the claimant includes the expenses which he has incurred in order to reduce or mitigate damage, as well as the cost of replacement, i.e., the expenses incurred by him to prevent the negative effects of the damaging event, as long as these and the former expenses can be considered as resulting from the damaging event and can be attributed to the conduct of the tortfeasor. Loss of earnings (*lucrum cessans*), understood as the net patrimonial increase which the victim has not obtained because of the damaging event, is also recoverable (Art. 1106 CC), although the Supreme Court is quite restrictive by requiring strict proof of the loss.[110] As regards the concept of "pure economic loss", as has already been explained, it is unknown to Spanish law.[111] 69

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

Given the restrictive approach of the Spanish courts with regard to loss of earnings, it seems doubtful whether traditional farmers would get compensation for this kind of damage in circumstances like those described in the questionnaire. Not only does the Spanish Supreme Court require a very stringent proof of damage, but it also refuses on many occasions to award damages for loss of earnings arguing that damage was too speculative or that the earnings were contingent and doubtful.[112] It has to be recalled as well that proof of the causal link is very stringent too, so it would be difficult for the claimants to prove that the alleged loss of earnings derives from fear of the customers that his products are no longer GMO free, since this loss could also be attributable to a change in consumer taste or to other circumstances. 70

(c) Where does your legal system draw the line between compensable and non compensable losses?

See answer to the previous question. 71

(d) What are the criteria for determining the amount of compensation in general?

The starting point is that Spanish tort law is governed by a principle of *restitu tio in integrum* or full compensation of damage sustained by the victim. There 72

[109] See *Rivero* (supra note 89) 485.
[110] Again see *Rivero* (supra note 89) 481.
[111] See above, no. 28.
[112] See in general *Díez-Picazo* (supra note 83) 287 and *M. Yzquierdo Tolsada*, Sistema de respon sabilidad civil contractual y extracontractual (2001) 151.

are neither specific provisions on compensation for tortious harm nor general rules encompassing harms resulting from contract and from tort. Nevertheless, both legal scholarship and case law consider that the general rules referring to liability in contract also apply to tort liability.[113] Hence, as referred to above, the result is that the "reparation" of damage to which Art. 1902 CC refers can be obtained either by restitution in kind (*reparación en forma específica* or *reparación in natura*) or by pecuniary compensation. In both cases, the law aims at re-establishing the victim, as far as it is possible, to the same position in which he should have been in if the damaging event had not occurred.[114]

73 As a general rule, the assessment of damages has to be done "according to the circumstances of the case" which, in the understanding of the courts, does not mean under their full discretion but a decision under the criteria of "prudence" and "reasonability" (STS 3rd Chamber, 20.1.1998 [RJ 1998\350]). Such assessment is considered to be a question of fact (*quaestio facti*) which pertains to the decision of the courts of instance[115] and can therefore not be reviewed at appeal or at cassation except in cases where the court of instance has not complied with the yardsticks established by the law—if they exist—or by "prudence and reasonability".[116] As regards property damage, see the answer to question (a) above.[117]

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

74 Liability under the tort provisions of the Civil Code is unlimited. There is no such thing as a general clause of reduction of liability or *Reduktionsklausel* under Spanish law. No legal rule allows the judge to reduce the amount of the damages awarded on the mere fact that full compensation menaces the economic situation of the debtor or it is disproportionate. Also there is no possibility for the judge to reduce liability on the basis of equity (*equidad*) (Art. 3.2 CC), except in the case of liability based on fault (Art. 1103 CC). Now, the issue is whether this rule is applicable to contractual liability only, or also to liability in tort. Certainly, many court decisions refer to this provision in order to look for a legal basis to reduce liability.[118] But as a matter of fact in these cases there is no true reduction in the sense referred to above, but only a distribution of liability between the defendant and the victim who contributed to cause damage to himself.[119]

[113] Instead of many see *R. de Ángel Yágüez*, Tratado de responsabilidad civil (1993) 671.
[114] See *C. I. Asúa*, in: *L. Puig Ferriol et alii* (eds.), Manual de Derecho civil II (3rd ed. 2000) 481 and *Rivero* (supra note 89) 485.
[115] See STS 6.5.1997 [RJ 1997\3866] and 18.12.2000 [RJ 2000\10123], among many others.
[116] See STS 2nd Chamber 21.4.1989 [RJ 1989\3498] and 23.2.1989 [RJ 1989\1250].
[117] Supra, no. 69.
[118] Among others, STS 13.10.1981 [RJ 1981\3734]; 15.12.1984 [RJ 1984\6118] and 11.2.1993 [RJ 1993/1457].
[119] As *M. Albaladejo*, Derecho civil, II, Derecho de obligaciones (12th ed. 2004) 937, has rightly pointed out.

Properly speaking, Art. 1103 CC is placed in a section whose heading is entitled "On the nature and effects of obligations". Taking into account that the Civil Code devotes only few provisions to tort liability, courts and legal writing tend to apply most of these general provisions, such as the one relating to the standard of care (Art. 1104 CC) or the scope of the recoverable damage (Art. 1107 CC) to tort law. However, many of these provisions, which at first sight seem common to contractual and tort liabilities, implicitly assume that there is a contractual relationship between the parties.[120] Nevertheless, the provisions of the special regime on bankruptcy will still protect the debtor. 75

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

The answer is no if the question is referring to the legal regime laid down by the GMO Act. However, the Spanish legislature has gone further than the Environmental Liability Directive with regard to financial securities in connection with environmental damage (Art. 14). As is known, the Directive had been very cautious before making insurance compulsory due to the practical absence of statistical studies about the pollution risk and the lack of experience in connection with the frequency of accidents – both of which are very important from the point of view of the insurance technique.[121] In spite of this, the Environmental Liability Act establishes the duty of the operator of the activities listed by the Act to provide a financial security to face liability in the event of damage caused by their activity having occurred (Art. 24.1). 76

(g) Which procedures apply to obtain redress in such cases?

In addition to the administrative procedure described above, the victims may file a claim before a court. The procedure is established by the Civil Procedure Act. In the case of liability falling under the scope of application of the Environmental Liability Act, the public authority has legal standing to proceed against the operator who caused damage or imminent threat of damage (Art. 2.1.22 and 9.3 and 4). 77

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

The GMO Act does not lay down any compensation scheme. However, the Environmental Liability Act provides for a State Fund of Environmental Damage Restoration which will operate in certain cases (Art. 34) and must not be confused with the Compensation Fund referred to above. In particular, the Fund of Environmental Damage Restoration will enter into play in the cases where the operator cannot be obliged to defray the costs derived from environmental 78

[120] See *Díez-Picazo* (supra note 83) 360 361.

[121] See among others *M. Zubiri de Salinas*, El seguro de responsabilidad civil por daños al medio ambiente (2005) 78.

damage to the public domain of the State since he has not behaved with fault or in an intentional manner and, additionally, one of these two conditions is met: either the emission has been duly authorized by the Public Administration (Art. 14.2.a)) or the development risk defence applies (Art. 14.2.b)).

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

79 Under Spanish law there are no specific rules on the issue of who has to bear the costs associated with sampling and testing for GMO presence in other products.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

80 The authors of this report know of no industry-based rules concerning the issue at stake. As for general rules, the question does not seem to have been raised either. Actually, when Spanish courts and legal scholars refer to prevention of damage they are usually thinking of the possibility for the claimant to ask the judge for an injunction or to force the tortfeasor to cease his conduct. In these cases it is usually spoken of a "preventive protection".[122] Moreover, it has been traditionally considered that the mere creation of a risk does not amount, in itself, to an illicit action. If there is no damage, there is also no right to compensation.[123] Therefore, it can be deduced from this that if a farmer has carried out any preventative measures to avoid damage, damage as a condition for liability does not exist.[124] Furthermore, it seems that sampling and testing for GMO presence is something which the victim does for his own profit. For this reason, there is probably some basis to argue that there is no causal link with the conduct of the defendant.[125]

81 However, a different solution could probably be based on the idea that the victim has a duty to mitigate damage. Thus, the adoption of preventative measures is a logical corollary or consequence of the burden to reduce damage if possible.[126] Accordingly, it would be reasonable to allow the victim to recover the cost of measures he has to adopt. Thus, if this was accepted, the cost of true

[122] For instance see *Álvarez* (supra note 95) 866.
[123] See *Rivero* (supra note 89) 453.
[124] In general see *E. Moreno Trujillo*, La responsabilidad civil por deterioro del medio ambiente, in: *G. Gómez Orfanel* (ed.), Derecho del medio ambiente (1995) 47 70, 59 and *M. J. Reyes López*, Derecho ambiental español (2001) 222.
[125] A similar argument has been raised by *Carrasco* (supra note 108) 679 with reference to con tractual liability.
[126] In a similar sense, see *de Ángel* (supra note 113) 602.

preventative measures could be recoverable in tort. However, it is rather unclear if the same applies to costs of general monitoring which, it is understood, derive from measures which are not adopted in the presence of a menace of damage, but on a regular basis with a general preventative aim.[127]

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

As has been explained, the criterion accepted by most scholars is that the costs of preventive measures are not recoverable because there is no damage. However, this is not shared by another opinion (see answer to the previous question). 82

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

There are no specific provisions concerning cross-border issues deriving from the kind of harm described in the questionnaire. As a matter of fact, legal scholarship has usually pointed out that a satisfactory solution for cases of damage caused by nuisance has to be searched for in the general rules on international private law.[128] As regards the Environmental Liability Act, it has a provision on so-called transboundary damage (*daños transfronterizos*), but it has to do with a duty to inform and cooperation between different public administrations only (Art. 8), in keeping with what had already been provided for by the Directive (Art. 15). 83

2. General rules of jurisdiction and choice of law

In Spain, the general rules on international private law are to be found in the Civil Code (Art. 8 to 12 CC). According to them, non-contractual obligations are governed by the law of the place where the fact from which they derive has occurred (Art. 10 par. 9 CC). Therefore, the criterion of *lex loci commissi delicti* is followed. This is the general criterion applicable to all instances of liability in tort. It functions as a subsidiary rule, applicable to those instances not falling under the scope of application of a different Spanish law or an international convention ratified by Spain.[129] Legal scholarship had criticised that the expression "non-contractual obligations" used by the provision is too 84

[127] See *Carrasco* (supra note 108) 679, who is contrary to compensate such a cost in the context of contractual liability.

[128] See *A. Crespo Hernández*, Daños al medio ambiente y regal de la ubicuidad en el art. 8 del futuro Reglamento de Roma II, [2006] *InDret* Working Paper no. 366, 5, <www.indret.com>, with further references.

[129] See *M. A. Amores Conradí*, in: *J. D. González Campos/J. C. Fernández Rozas/A. L. Calvo Caravaca/M. Virgós Soriano/M. A. Amores Conradi/P. Domínguez Lozano* (eds.), Derecho internacional privado. Parte especial (6th ed. 1995) 210 and *G. Palao Moreno*, Aspectos inter nacionales de la responsabilidad civil por servicios (1995) 58 and 60.

broad. The provision – which is considered imperative and therefore does not allow the parties to agree on a different rule – is also deemed too general and the solution provided for too simple.[130] To apply the criterion of *lex loci delicti* in every case does not allow the following of more flexible approaches which are to be found in the legislation of other countries.[131] Specially, the rule may be inappropriate whenever the results of the damaging events manifest themselves in several different countries, for instance in the case of damage arising from transboundary pollution.[132] However, as is well known, this issue has been substantially affected by the Rome 2 Regulation (Regulation [EC] No. 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations).[133]

[130] See *J. C. Fernández Rozas/S. Sánchez Lorenzo*, Derecho internacional privado (2nd ed. 2001) 607 608 and *P. Abarca Junco in E. Pérez Vera* (ed.), Derecho internacional privado II, Derecho civil internacional (1998) 339.

[131] See *K. Fach Gómez*, Respuestas jurídicas a la contaminación transfronteriza: iniciativas comunitarias, to be downloaded from the website of the European Union at: <http://ec.europa.eu/justice_home/news/consulting_public/rome_ii/katia_fach_gomez_es.pdf>, 2 3.

[132] See *A. Miaja de la Muela*, Derecho internacional privado, II, Parte especial (10th ed. 1987) 398 and *A.-L. Calvo Caravaca/J. Carrascosa González*, Derecho internacional privado II (2003) 584.

[133] OJ L 199, 31.7.2007, 40 49.

Economic Loss Caused by GMOs in Sweden

David Langlet/Mårten Schultz

I. Special liability or compensation regimes

When this report was written, no commercial production of genetically modified crops had yet taken place in Sweden. The commencement of commercial growing of GMOs may, however, be expected in the relatively near future. About 115 field trials have been conducted over the past 17 years, the vast majority of which have involved potato, rape seed or sugar beet. There is no special liability regime for GMOs in force in Swedish law. A commission appointed by the Swedish legislator has recently reviewed the applicable legislation in order to prepare for the commencement of the commercial utilisation of GM crops.[1] This has so far included inter alia the elaboration of draft regulations pertaining to the coexistence of GM and non-GM potatoes and maize and the appointment of a commission that would, inter alia, look into the need for a special regime for liability in connection with the admixture of GMO and non-GMO crops.[2] The commission has, more specifically, investigated whether there is need for a special strict liability regime or if the present rules are sufficient to deal with these liability issues. The investigation was limited to economic loss only. The commission concluded that this situation could be handled through traditional tort law rules and did not therefore suggest any special legislation, or any amendments of existing legislation. There are as of yet no indications on what the results of the suggestions by the commission will be. We will therefore hereinafter consider the question of liability for pure economic loss for GMOs under different existing liability rules. 1

II. General liability or other compensation schemes

1. Introduction

Since there are as of yet no special liability regimes for GMOs we will need to account for how the situations that fall under the questionnaire could be dealt with under general rules on liability. In this regard there are several different sets of rules that need to be considered. In theory three different approaches 2

[1] SOU 2007:46: *Ansvarsfrågan vid odling av genmanipulerade grödor*.
[2] *Direktiv* (directive) 2006:38, from 27 April 2006.

could be taken by a court that would have to decide a case of liability for GMOs today. Of these three alternatives only one is probably a feasible option if such harm would occur today.

3 Firstly, the liability question could perhaps fall under the special liability rules concerning environmental damage in *chapter 32 of the Environmental Code* (or Book).[3] The liability rules in the Environmental Code are rather narrowly formulated and not all damage that would, in a wide sense of the word, be called environmental damage is covered by the Environmental Code.[4] The emphasis of the rules in chapter 32 of the Environmental Code is on relationships between neighbours and most rules herein are thus of a type that in English law would be dealt with under the heading of nuisance.[5] In chapter 32, section 3, it is stated that liability under the chapter can arise for different "disturbances" that are listed in the section. The disturbances that entitle the victim to compensation are pollution of water areas, pollution of groundwater, changing of groundwater level, air pollution, land pollution, noise, vibration or other similar disturbances. Liability for GMOs under chapter 32 of the Environmental Code is thus only possible if it could be regarded as similar to some of the other listed disturbances. In the directive to the commission on liability for GMOs it was stated that for the rules in the Environmental Code to apply to the GMO situation it would need to be categorized as a disturbance similar to land pollution. In the directive to the commission on liability for GMOs however, this was not seen as a real possibility since the list in chapter 32, section 3 focuses on a situation where the pollution entailed health risks or where crops become unfit, which (at least generally) is not the case of admixture of GMO and non-GMO crops. The commission, on the other hand, came to the conclusion that damage caused by GMOs could fall under the liability rule as a "similar disturbance".

4 Secondly, there is in theory a possibility that the situation of liability for GMOs could induce the courts to introduce a regime of *strict liability*. In practice this seems highly unlikely. There are no general principles that dangerous activities fall under a strict liability in Sweden. In fact, in Swedish tort law there has been a considerable reluctance to establish strict liability regimes in the absence of legislation. The most important writer on Swedish tort law in the last decades famously stated that for courts to introduce strict liability without legislation has been considered a "bold, almost revolutionary step".[6] There are some few excep-

[3] The Environmental Code can be found in English language on the Portal of the Swedish Government, see http://www.regeringen.se/content/1/c4/13/48/385ef12a.pdf.

[4] For instance: Ecological harm that has not been caused through activities on a piece of land would not fall under the Code.

[5] Chapter 32 of the Environmental Code includes other rules as well and not only rules on the relationship between neighbours/landowners. There are also several rules on liability for damage in relation to construction work (which hardly would fall under the expression "environmental damage" in everyday language).

[6] The writer is Jan Hellner, see *J. Heller/S. Johansson*, Skadeståndsrätt (6th ed. 2000) 170. The Swedish attitude here contrasts with that in other Scandinavian countries (Norway and Denmark) where the courts have been more favourable to establishing strict liability regimes for different types of dangerous activities.

tions. Recently the Swedish Supreme Court established that strict liability applies in situations where property damage is caused by a leakage from different types of water and sewage systems.[7] There are some older examples as well, where the Swedish Supreme Court has established strict liability without any statutory support but then restricted this to dangerous activities (for instance military exercises). There are many examples of strict liability in special legislation, for example in chapter 32 of the Environmental Code. As a general characteristic it could be said that legislation stipulating strict liability has been introduced for different kinds of dangerous activities (albeit the rules on strict liability for dogs might be an exception). Therefore, and especially in light of the comments made by the Government in the directive to the commission on liability for GMOs mentioned in the previous paragraph, it seems unlikely that a Swedish court would establish a strict liability regime for GMOs without any clear guidelines from the legislator.

Thirdly, liability for GMOs could be dealt with under the *general liability rules*. These rules follow from the *Tort Liability Act* from 1972. This Act is often characterized as a framework statute. Many important questions – for instance the requirement of causation and issues of remoteness of damage – are not dealt with in the Act at all. 5

In the rest of this report we will focus on the general liability rules that are stated in the Tort Liability Act and which follow from unwritten law. We will also make comparisons with the rules of the Environmental Code where such comparisons could be of interest. 6

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

There are no general, codified rules on causation in *statutory* Swedish tort law. There are several examples in special legislation on the issue of the burden of proof for causation (see for instance the Environmental Code, ch. 32, sect. 3, paragraph 3), but there are no rules on causation as such in special legislation either. 7

To these authors, it seems fairly clear that it is inaccurate to hold that the Swedish *courts* understand the general concept of causation in terms of the *conditio sine qua non* theory.[8] The approach of the Swedish courts could probably best be described as pragmatic and the courts seem not to have felt any need for a general theory of causation. The expressions of necessary and sufficient conditions occur seldom in court practice.[9] 8

[7] See Nytt Jurisdikt Arkiv (NJA) 1991 720, NJA 1997 684 and NJA 2001 368.

[8] See, for the following, *M. Schultz*, Kausalitet (2007).

[9] It should be noted that there are some exceptions. See for instance the but for test approach taken by the Court of Appeal's opinion in NJA 1987 710 and the minority in the Supreme Court in NJA 1982 421.

9 In *legal literature* the conceptual framework of necessary and sufficient conditions is still dominant but what this framework in more detail is supposed to do for causal analysis is somewhat unclear.[10] It seems that very few authors today would be ready to take a stand for the *conditio sine qua non* theory. However, there are examples of how the heritage from the *conditio sine qua non* theory can still be detected, for instance in accounts of "competing causation" or multiple-sufficient causes situations.

10 To summarize the concept of causation in Swedish tort law is difficult to capture in any clear-cut formula.

(b) How is the burden of proof distributed?

11 The question concerning causation that has been most widely discussed in recent times in Swedish law is whether the standard rules on the *burden of proof* should also be applied in situations where causation is difficult to establish. As a general starting point it is up to the plaintiff to prove causation. The standard for this burden of proof in Swedish tort law is higher than the "more likely than not" standard, but lower than the "beyond a reasonable doubt" standard in criminal law. (The Swedish term for the traditional standard of the burden of proof is "styrka", in literal translation "to strengthen", which is often translated simply into "prove".)

12 In cases where causation is difficult to establish, the plaintiff's burden of proof is sometimes alleviated. If there are two or more possible causes of damage the plaintiff will in most cases have fulfilled the burden of proof if she can make her causal explanation clearly more probable than any other explanation, but only if the plaintiff's explanation is probable in itself.[11] In cases where the

[10] See, inter alia, *J. Hellner/S. Johansson* (supra fn. 6) 12.1.2; *H. Andersson,* Skyddsändamål och adekvans (1993) 290 ff.; *R. Hager*, Värderingsrätt (1998) 250 ff.; *U. Persson*, Skada och värde (1953) 93 ff. and 190 ff.; *B.W. Dufwa*, Flera skadeståndsskyldiga (1993) no. 2419; *M. Radetzki*, Orsak och skada (1998) 88 ff.; *M. Schultz*, Further Ruminations on Cause in Fact, in: *P. Wahlgren* (ed.), Scandinavian Studies in Law 41 (2001) 467 ff.

[11] See NJA 1981 622. The circumstances are perhaps interesting here since there are some affini ties with the present topic. The plaintiff owned a fish farm in the municipality of Västervik. A sewage station owned by the municipality discharged phenol into a ditch, which thereafter poured into the fish farm. The plaintiff claimed damages from the municipality under the argu ment that trout in the fish farm died as a result of the phenol discharge. The municipality op posed the claim and argued that the actual cause of the trout's death was a lack of oxygen in the pond. The Supreme Court found that the parties had presented no other possible causes than the phenol discharge and the lack of oxygen. It was further established that full certainty of what actually caused the death of the trout could not be obtained, but stated that this did not preclude a successful claim. In some claims concerning damages where the issue of causation is disputed between the parties it may be sufficient that the causal connection proposed by the plaintiff appears to be clearly more probable than any other explanation proposed by the defendant and if it seems probable also in regard of the other circumstances of the case. The Court further stated that the lowered threshold for the burden of proof was especially motivated in cases of environmental damage and similar types of damage. After consideration of the evidence in the case the Court found that the plaintiff's explanation seemed substantially more probable than the defendant's proposition. The plaintiff was awarded damages.

cause of damage is disputed among the parties this threshold for the burden of proof is now well entrenched, albeit there are some (potentially important) differences in the wording in the different cases.

The lowered threshold for the burden of proof can be found in many areas which are covered by *special legislation*. For instance, in the aforementioned rule in the *Environmental Code* (ch. 32, sect. 3) there is a special rule regarding the burden of proof (paragraph 3).[12] The same applies in many other situations where there is a special statute on compensation for damage, for instance in the case of patient injuries. 13

It should be noted that the burden of proof concerning causation is seldom shifted to the defendant. The Supreme Court has shifted the burden of proof in some, few cases that seemingly have little in common with the question of liability for GMOs.[13] 14

(c) How are problems of multiple causes handled by the general regime? Does it include special rules on alternative, potential or uncertain causation? Is liability channelled to a particular person, and if so, how? Is joint and several or other collective liability foreseen, and under which conditions?

Swedish tort law does not acknowledge any particular rules or principles on alternative, potential or uncertain causation. This topic has not been that much discussed in Swedish tort law. The main reason for this is probably that many of the types of claims that have provoked different national systems to introduce such particular doctrines of causation, including also different types of proportional liability doctrines and compensation for a loss of chance, would in Swedish law fall outside the scope of tort law and would rather be dealt with under special compensation schemes. In this way liability is channelled to particular compensation systems. This applies especially for personal injuries. The Swedish, or Nordic, Model is sometimes used as an expression for a compensation model that in important areas more or less has replaced tort law as a tool for compensation of personal injuries with other modes of compensation. Narrowly defined, the Swedish or Nordic Model is an expression of the general attitude towards personal injury compensation as expressed in the insurance schemes for compensation of traffic injuries, occupational injuries, 15

[12] In the official translation of the Code, this is expressed as follows. "Damage shall be deemed to have been caused by a disturbance referred to in the first paragraph where, in view of the nature of the disturbance and its adverse effects, other possible causes and any other circumstances, the balance of probability indicates that the disturbance was the cause."

[13] In NJA 1988 226 two persons A and B were held criminally responsible for having received stolen property. The property was returned to the owner, but some of it was damaged. A and B argued that the property had been damaged already when they received it, which implicated that the damage had been caused by the thief (or thieves). The Supreme Court established that since there were no indications that the property had *not* been damaged while it was in the possession of A and B, the "inconvenience" that full certainty regarding when the damage occurred could not be obtained should be borne by the defendants and not the plaintiff.

patient injuries and pharmaceutical injuries.[14] As a result of these compensation schemes many of the difficult questions concerning causation in cases of personal injury, for instance in the case of pharmaceutical injuries, have not been brought to the fore in the way they have in other jurisdictions.

16 In this context it should be mentioned that environmental damage that falls under the *Environmental Code* will sometimes be covered by particular environmental damage insurance. A prerequisite is that the damage falls under specified rules in the Code, for instance the rule in chapter 32, section 3. This insurance is explicitly thought to be applicable in some circumstances where causation is difficult to establish. It is thus stated in chapter 33, section 2 that: "Compensation shall be paid out of the environmental damage insurance in accordance with the relevant terms and conditions to claimants for bodily injury and material damage referred to in chapter 32, where: […] 2. it cannot be established who is liable for the injury or damage."

17 There is a general rule in the Tort Liability Act (ch. 6, sect. 4) which states that if several persons are obliged to compensate the same damage, liability is *joint and several*. This rule does not say when several persons are obliged to compensate the same damage but this follows from the general rules and principles concerning liability.

18 Other kinds of collective liability, for instance a *proportional liability* regime, would be seen as a very radical idea in Swedish tort law.

19 It could be interesting to note that that Sweden has introduced the *class action* institute recently.[15] For environmental damage that falls under the Environmental Code there is a special provision (the Environmental Code, ch. 32, sect. 13), stating that claims for compensation under the Code may be handled under the special procedural rules in the Act on Class Action. Also for other kinds of damage, for instance in our case of pure economic loss resulting from the spreading of GMOs that will probably not be dealt with under the Environmental Code, such cases may be dealt with under the class action institute if the conditions are fulfilled. It should be said that the Swedish version of the class action institute is in many aspects different from its US counterpart. The legislation is not intended to have material implications for tort law[16] which means that (in theory) the requirement of causation would not be differently dealt with within a class action suit than in a traditional, bilateral case.

[14] See, *inter alia*, *J. Hellner*, Compensation for Personal Injury: The Swedish Alternative, 34 American Journal of Comparative Law, 613 ff. (1986); *J. Hellner*, Compensation for Personal Injuries in Sweden A Reconsidered View, in: *P. Wahlgren* (ed.), Scandinavian Studies in Law 41 (2001) 249 ff.; *C. Oldertz*, Security Insurance, Patient Insurance, and Pharmaceutical Insur ance in Sweden, 34 American Journal of Comparative Law, 635 ff. (1986).

[15] Act 2002:599 on Class Action (lag 2002:599 om grupprättegång).

[16] Explicitly stated in the preparatory works, see *proposition* 2001/02:107, 31.

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

Liability under the general rules in the Tort Liability Act (especially the main rule in ch. 2, sect. 1 – often simply called the *culpa rule*) is for the most part a negligence (fault-based) liability. There are no guidelines in the Act on how to decide negligence in a particular case. 20

Compensation for pure economic loss does *not* fall under the general culpa rule in the Tort Liability Act but under a particular rule in chapter 2, section 2.[17] The conditions for establishing fault are nevertheless of interest in this context since liability for pure economic loss generally requires fault, even if fault is not always sufficient. 21

In the most important Swedish textbook on tort law, Jan Hellner's Skadeståndsätt, a model for evaluating whether negligence has occurred is presented.[18] According to Hellner the conduct of a person in a negligence case can sometimes be evaluated against rules or standards expressed in legal sources, such as legislation, preparatory works, practice from the Supreme Court and custom. If there is a clear rule of conduct in a statute, or in some other source of law, this is often a clear indication on how the negligence question should be resolved. However, a conduct that is in violation of a rule (say a rule of conduct in traffic) can (probably) not *per se* be regarded as negligent.[19] Violation of norms in legal sources thus make a good case for negligence but it is not *always* the case that such violation actually entails that the defendant is considered to have been negligent. 22

If there are clearly established statutory rules defining the required conduct for GMO agriculture and these rules have been violated this would in our view make a very strong case for negligence. 23

If there are no clear guidelines in the legal sources of how to deal with the negligence issue in a particular case, Hellner suggests that negligence can be tested in a "free evaluation". This is Hellner's take on the *Learned Hand* formula, which differs in one important aspect from the traditional (economic) view. Hellner 24

[17] This rule will be presented below.

[18] The influence of Hellner's textbook could not be exaggerated. The book is often considered one of the best textbooks in Swedish civil law and its influence is also apparent on court practice. On the question of negligence, see *J. Hellner/S. Johansson* (supra fn. 6) 125 ff.

[19] See for instance NJA 1976 379 where the defendant caused a personal injury when he walked on a road where pedestrians were not allowed. The Court found the defendant negligent but only after having taken into regard his behaviour; especially that he had failed to take notice of a sign by the road.

thus adds a fourth criterion that should be taken into regard in the evaluation of negligence. According to Hellner the evaluation of the defendant's behaviour should take into regard: (1) the risk of damage; (2) the magnitude of the probable damage; (3) the defendant's possibility to avoid the damage; and, (4) the defendant's possibility to realize the risk of damage. There are some cases from the Supreme Court where it is fairly clear that this model has been used.[20]

25 The general rule on the *burden of proof* is that it is the plaintiff that needs to prove that the defendant acted negligently. Negligence is presumed only in a few cases without interest for this discussion.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

26 Liability for disturbances under the *Environmental Code* is strict, with some exceptions.

27 In cases where the main liability rule in the Environmental Code (ch. 32, sect. 3) is applicable the defendant can probably not avoid liability with reference to "acts of God" or similar defences. There are some exceptions from liability within chapter 32 of the Code but these are not to be seen as defences but rather as limitations of the liability rules as such. For instance, when it comes to pollution of water areas, pollution of groundwater and changing of groundwater level, liability is excluded if the defendant has acted in compliance with the terms of a permit for water operations.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

28 This would be the rules in chapter 32 of the Environmental Code as previously discussed. They will likely not be applicable in the type of situations that fall under this study.

4. Damage and remedies

(a) How is damage defined and measured? In what way is pure economic loss handled differently to other types of losses, if at all?

29 Pure economic loss is a special type of damage in general Swedish tort law.[21] It is the only kind of damage that is explicitly defined in the Tort Liability Act. A pure

[20] See, *inter alia*, NJA 1981 683.

[21] The main work on pure economic loss in Sweden is *J. Kleineman*, Ren förmögenhetsskada (1987).

economic loss is, according to the Tort Liability Act, chapter 1, section 2, an economic loss that arises without connection with someone's personal injury or property damage. This definition entails that economic loss that has a connection with a previous personal injury or property damage will not be seen as a pure economic loss, even if the personal injury or property damage was suffered by someone other than the person than suffered the economic loss. In other words: Third party loss resulting from the primary victim's personal injury or property damage is not a pure economic loss (albeit a "general" economic loss) in Swedish tort law.

In chapter 2, section 2 of the Tort Liability Act it is stated that a pure economic loss is compensable if it is caused through a criminal offence. On the face of it this rule says nothing on whether pure economic loss could be compensated in *other* cases, that is, in cases where it is the result of a non-criminal conduct. Nevertheless the rule has traditionally been interpreted *e contrario*. The main principle in general Swedish tort law has thus been that pure economic loss is only compensated if it has been caused through a criminal conduct. 30

It should be noted that the Tort Liability Act does not apply in situations where special legislation is in force (according to ch. 1, sect. 1). This is especially important for pure economic loss cases. For instance, special rules on compensation for pure economic loss apply in cases of intellectual property law, trademark law and liability for board members in limited liability companies. 31

The traditional attitude towards compensation for pure economic loss, albeit this type of loss is narrowly defined, is thus restrictive. In recent years the Courts have been more inclined to make exceptions to the restrictive interpretation. It has now been established that liability for pure economic loss can also occur without criminal conduct in some cases, for instance in the case of negligent misrepresentation and inducement to breach a contract.[22] Another situation where such liability can occur has roots in court practice from the time before the introduction of the Tort Liability Act, and that is the case of *culpa in contrahendo*. These cases of compensation for pure economic loss can probably best be described as exceptions to the main rule, which is that pure economic loss is generally compensable if caused through a criminal offence if there is no special legislation applicable to the case. 32

Under the rules in the *Environmental Code* there are no restrictions to criminally caused loss. If the prerequisites in the Code are fulfilled pure economic loss may also be compensated. There is however a sort of de minimis rule with regard to pure economic loss. In chapter 32, section 1 it is stated that pure economic loss is compensated only if the loss is of "some importance", which means that trivial loss is not compensable. (*De minimis*-rules are uncommon in Swedish tort law.) Even trivial loss is compensated if the responsible party acted criminally. There are rules on criminal responsibility in chapter 29 of the Environmental Code, but there are also rules in the Penal Code that may be applicable. 33

[22] See especially NJA 1987 692 and NJA 2005 608.

34 *Indirect damage* is not compensable under the rules of the Environmental Code. It is not completely clear what kind of damage an indirect damage is supposed to be. The exclusion of indirect damage is in line with the general (and uncodified) exclusionary rule for third party loss and could probably best be seen as an extension of the general rule. An example could be that a company C, that has a contract with the farmer F who suffers pure economic loss as a result of admixture of her crop and the GMO crop owned by D, in turn suffers loss since F is unable to fulfil her obligations towards C. C would not be able to claim compensation for this loss from D.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

35 As far as we understand it this question will not raise problems for compensation for pure economic loss in Swedish law. Such loss may often be the result of a change in market value and the reason for this change in market value – for instance whether the value of a property is influenced by misconceptions about the real state of affairs – will generally not need to be addressed if the other prerequisites for liability are fulfilled.

36 The question of whether actual admixture has occurred may on the other hand have other consequences. This issue falls outside the stated scope of this report but it should be touched upon in this context to give a more complete picture of the system. If an admixture has occurred it could possibly entail that the change in the previously non-GMO crop could be regarded as *property dam age* under Swedish law.

(c) Where does your legal system draw the line between compensable and non compensable losses?

37 See the answer to the previous question. Pure economic loss may often be the result of a change in market value and the reason for this change in market value will generally not need to be addressed if the other prerequisites for liability are fulfilled.

(d) What are the criteria for determining the amount of compensation in general, and how would this apply to the kind of cases covered by this study?

38 There are no statutory rules in the Tort Liability Act on how compensation for pure economic loss should be calculated. (This is in contrast with compensation for personal injury and property damage where there are many, detailed rules in ch. 5 of the Tort Liability Act.) The loss would probably be calculated from an estimation of the loss of market value of the crop. In addition the farmer would be able to claim compensation for costs, for instance the cost of testing. Compensation may perhaps also be awarded for future loss if such loss can be estimated in advance.

There is a general rule in the *Procedural Code* (ch. 35, sect. 5) which stipulates that a court may estimate the value of damage to a reasonable amount if it is difficult or costly for the plaintiff to prove the extent of the damage. This rule is often used by the courts to estimate the amount of compensation. 39

There are several particular rules on the calculation of damages in the *Environmental Code*. In chapter 32, sections 9 and 10 provide guidelines for the calculation of damages. It is explicitly stated that compensation may also be awarded for future loss that can be estimated. 40

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

There are no caps on damages under the general rules in the Tort Liability Act. 41

There are no caps on damages under the rules in the Environmental Code. 42

A characteristic feature of Swedish tort law is the many and open possibilities of *mitigation*. In the Tort Liability Act there are several rules on the mitigation of damages. The most important rule is the general rule on mitigation which stipulates that if the obligation to pay damages would be "unreasonably burdensome" the amount of damages could be lowered (ch. 6, sect. 2). The general rule is not restricted to exceptional cases and mitigation can even occur when the tortfeasor's behaviour was criminal. 43

There is a special rule on mitigation in the case of contributory negligence on the part of the victim (ch. 6, sect. 1). 44

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

The permits granted for field trials have not included specific requirements with respect to testing. The precautionary measures prescribed in the permits have been seen as sufficient to prevent any unintentional gene flow, thus making testing superfluous. General standards to be applied to commercial growers are yet to be adopted. They are, however, likely to prescribe that the responsible authority shall be notified before any growing of a modified crop that has been put on the market may commence. The notification requirement will probably be combined with a fee that covers the costs for *inter alia* sampling and testing conducted by the pertinent authority (The Board of Agriculture). It does not seem likely that the future rules will provide owners or users of neighbouring properties with the right to conduct their own testing at the ex- 45

pense of the grower of GM crops. The rules are, as previously mentioned, yet to be adopted.

46 Responsibility for the monitoring of GMO presence in food and feed is divided between the municipalities and the National Food Administration (NFA, in Swedish: *Livsmedelsverket*) with only a few large importers and industries falling within the latter's responsibility. Currently, the only testing by public authorities taking place is that conducted within specific projects initiated by the NFA. It involves the taking and analysing of samples from food products. So far, the costs of these analyses have been borne by the NFA. The main focus of the GMO-related food control has not been on the testing of random samples but rather on controlling that actors in the food business apply the labelling and documentation requirements appropriately. The system is built on a relatively high level of trust towards the private actors and puts a lot of emphasis on information and education rather than control. There is, however, a legal basis for letting those subject to control measures pay for the tests conducted as part of the official control system. The bulk of all analyses conducted is made on a voluntary basis by the industry itself, mainly by the larger actors in the business as a way to complement producer certificates and other means of guaranteeing the GM free status of purchased products.

47 Seed for sowing is subject to its own regulatory regime. All such seed imported from a third country (i.e. a non-EC member state) is subject to official control which may include the taking of samples and testing for GMOs in those kinds of seed where presence of such organisms is likely, typically rape seed. With respect to such seed from other sources the control is less vigorous but the authorities retain the right to subject each lot to monitoring. With respect to seed for sowing the cost for monitoring, including testing for the presence of GMOs, is borne by the importer/producer of the seed.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply (and if so, who would have to bear these costs)?

48 No specific industry-based rules appear to exist. The taking and testing of samples is made on the basis of company specific policies and varies between different sectors and companies due, e.g. to the likelihood of admixing of GMOs and the priorities of individual companies. The cost for such testing is borne by the individual company that is having the test. The distribution of costs for the unintentional presence of GMOs is, to the extent that it is addressed at all, subject to regulation by agreement between the concerned commercial actors.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

49 Not applicable. See answer to III.1 above.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

As far as we know there is no special conflict of laws rules in force or planned which may apply to harm of the kind dealt with in this report. 50

2. General rules of jurisdiction and choice of law

The general rule on jurisdiction for claims for damages is found in the Procedural Code, chapter 10, section 8. This rule states that a tort damage should be tried by the court where the harm was caused or where the harm occurred. Additionally, the Brussels I Regulation and the Lugano Convention may be applicable.[23] 51

As to the question of applicable law, the general principle with respect to non-contractual damages is that of *lex loci delicti,* i.e. the case shall be tried according to the applicable law where the action was taken that caused the damage.[24] 52

If damage is caused in the territory of one of our Nordic neighbour states, particular rules apply provided that the damage is deemed to be environmental in character. In accordance with *the Nordic Convention on the Protection of the Environment*[25] between Denmark, Finland, Norway and Sweden, any person who suffers damage caused by environmentally harmful activities in another contracting state has the right to bring before the appropriate court or administrative authority of that state proceedings concerning compensation for damage caused by such activities. The question of compensation shall not be judged by rules which are less favourable to the injured party than the rules of compensation of the state in which the activities are being carried out.[26] Although GMOs are not explicitly covered by the Convention it is reasonable to presume that its open ended definition of environmentally harmful activities should be deemed to cover damage caused by the unintentional spread of such organisms.[27] In practice, this would mean that in the case of harm being caused by the cultivation of GMOs in Sweden to the production of non-GMOs in a neighbouring country, an affected person could sue for damages in a Swedish court. Such a person would also be entitled to have the case tried according to Swedish law, to the extent that it would be more beneficial to the claimant than the law of the country where the injury occurred. 53

The so-called Rome II regulation will affect the state of Swedish law once it enters into force.[28] 54

[23] With respect to Denmark, the Brussels Convention is still applied.
[24] This was established by the Swedish Supreme Court in 1969 (NJA 1969 163).
[25] 13 ILM (1974) 511.
[26] See Article 3.
[27] See Article 1.
[28] Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non contractual obligations (Rome II) OJ L 199/40 of 31 July 2007.

Economic Loss Caused by GMOs in Switzerland

Markus Müller-Chen

I. Special liability or compensation regimes

1. Introduction

The Federal Law relating to Non-human Gene Technology (GTL)[1] entered into force on 1 January 2004. The GTL aims at protecting humans, animals and biological diversity. Art. 1 sec. 2 GTL lays down an open list of goals: 1

a. Protection of health and security of humans, animals and the environment,
b. Sustainable biological diversity and fertility of the soil,
c. Respect of human creatures,
d. Free choice for consumers,
e. No misleading information concerning the quality of a product,
f. Promoting public information,
g. Acknowledgement of importance of scientific research in the domain of genetic technologies.

The GTL has established a tight net of notification, authorisations and supervision which include the handling of GMOs in contained systems, field experiments and the final release into the environment. 2

Art. 30 ff. GTL lays down liability rules. They also cover the topic of this study i.e. the damage of non-GM crops by GMO presence. The following paragraphs give an overview. Please find in quotation marks an unofficial and unpublished translation of the relevant provisions done at the behest of the Federal Office for the Environment. 3

> **Art. 30 sec. 1 GTL**: "Any person subject to the notification or authorisation requirement, who handles genetically modified organisms in contained systems, releases such organisms for experimental purposes or

[1] SR 814.91; SR is an abbreviation for "Systematische Rechtsammlung" which means the system atic compendium of the federal law.

> markets them without permission is liable for any damage that occurs during this handling that is a result of the genetic modification."

4 Strict liability applies to damage caused by the handling of GMOs in a contained system, by releases for experimental purposes or by their non authorised placing into circulation (art. 30 sec. 1 GTL). The person subject to authorisation is liable for all damage caused by the genetic modifications without taking into consideration fault or negligence.

> **Art. 30 sec. 2 GTL**: "The person subject to authorisation is solely liable for any damage that occurs to agricultural or forestry enterprises or to consumers of products of these enterprises through the permitted marketing of genetically modified organisms, that is a result of the modification of the genetic material, if the organisms:
> a. are contained in agricultural or forestry additives; or
> b. stem from such additives."

5 The notion of "permitted marketing" in art. 30 sec. 2 GTL means putting GMO products into circulation with a licence from the Confederation (art. 12 sec. 1 GTL). Marketing covers sale, barter, send on sale or return, leasing GMOs away as well as imports. Contained use or release for experimental purposes do not fall under marketing (art. 5 sec. 5 GTL, arts. 10/11 GTL).

6 Art. 30 sec. 2 GTL was the price the GMO-agribusiness had to pay to get the buy-in from the GMO-sceptical farming and forestry lobby. It covers the damage suffered by agricultural and forestry enterprises or consumers of products of these enterprises that arises from GMOs that have been put in circulation with authorisation. The damage has to be caused by genetic modifications. Further assumptions are that the GMOs must be part of additives of agriculture and forestry or originate from such material. This is a no-fault (strict) liability provision. In such a case the liability is channelled towards the person who received the authorisation to release the GMOs into the environment. This person can take recourse against the person who has dealt with the GMO in an inaccurate way or who has contributed otherwise to the damage. Art. 30 sec. 3 GTL states:

> "In the liability under paragraph 2 recourse to persons who have handled such organisms inappropriately or have otherwise contributed to the occurrence or exacerbation of the damage is reserved."

7 The intention of art. 30 sec. 2 GTL is to protect farmers from any liability and to let the person who earns most from the genetic technology bear the risks of it. The channelling of liability can have negative effects on the injured party. For example, an organic farmer recognises that his wheat is genetically polluted. He sues the person subject to authorisation, say the producer. The defendant can prove that the contamination happened at the agricultural co-operative storing the seeds in an inappropriate way. The court decides to exonerate the producer from liability because of a serious fault of the co-operative. The farmer is barred from suing the co-operative, because it is protected by

privilege from liability in art. 30 sec. 2 GTL. But the co-operative can neither be sued on the basis of arts. 41 and 55 CO (Code of Obligations, SR 220) because provisions on strict liability for such consequences are considered to be *lex specialis* to fault-based liability provisions by the Federal Court of Justice. This is if the *lex specialis* provision is to rule exclusively over damage, which is the case with art. 30 al. 2 GTL. Finally recourse according to art. 30 sec. 3 GTL is not possible because there is no principal claim.

The notion of additives is not defined by the GTL. It corresponds to the notion of "means of production" laid down in art. 158 of the Federal Law on Agriculture (SR 910.1). "Means of production" are materials and organisms used for agricultural production. Examples are fertilisers, pesticides, animal feed and vegetable reproduction materials. Several ordinances specify the handling of GMOs with different kinds of additives. 8

> **Art. 30 sec. 4 GTL**: "If damage is caused by any other permitted marketing of genetically modified organisms as a result of the modification of the genetic material, the person subject to authorisation is liable if the organisms are faulty. He or she is also liable for a fault which, according to the state of knowledge and technology at the time when the organism was marketed, could not have been recognised."

Art. 30 sec. 4 GTL deals with all cases that do not fall under art. 30 sec. 2 GTL. This means it is concerned with damage either not sustained by agricultural or forestry enterprises or consumers or not caused by organisms contained in agricultural or forestry additives or stem from such additives. Like art. 30 sec. 2 GTL, it only covers cases where the release of GMOs into circulation have been authorised. The person subject to authorisation is liable for the damage caused by the GMO as a consequence of the genetic modification. Contrary to art. 30 sec. 1 and 2 GTL it is required that the GMOs are defective. Art. 30 sec. 5 GTL defines a defective GMO as follows: 9

> "Genetically modified organisms are defective if they do not provide the safety that is to be expected, taking into consideration all situations; in particular the following should be considered:
> a. the way in which they are presented to the public;
> b. the use that can reasonably be expected;
> c. the time at which they were marketed."

Please consult Chapter I.3(b) for further comments.

If the GMO has no defect in the sense of art. 30 sec. 4/5 GTL, the person subject to authorisation is not liable. The liability could, though, be constituted based on the general liability provisions that can be applied alternatively, if the individual prerequisites are fulfilled (art. 41 CO: fault-based; art. 1 ff. Federal Product Liability Act: non fault-based; arts. 59a and 59a bis Environment Protection Law: strict liability; art. 55 CO; arts. 679/684 CC). 10

11 The general liability provision for illicit acts of art. 41 CO assumes an illicit act or a failure to act where an act is required, a damage and fault or negligence. Further a causal link is needed between the illicit act, the negligence contrary to duty and the damage.

12 Art. 1 ff. of the Federal Product Liability Act is a non fault-based liability provision for the producer of consequential damage through a defective product. The defective product must be a movable good which has been industrially produced, (whether or not incorporated into another movable or into an immovable good). Only the consequential damage is covered, including bodily harm or damage to objects that are mainly in private use. The claimant has to prove the damage, the defect in the product and the causal link between the damage and defect.

13 Art. 59a of the Environment Protection Law states a liability independent of fault. The owner of a factory or a plant whose activities are potentially dangerous to the environment is liable for the damage that occurs through realisation of this danger. Art. 59a bis of the Environment Protection Law statues a liability for damage that occurs by the handling of pathogenic organisms.

14 According to art. 55 sec. 1 CO the principal shall be liable for damage caused by his employees or other supporting staff in the course of their employment or business. He is exempted from liability if he proves that he took all precautions appropriate under the circumstances in order to prevent damage of that kind, or that the damage would have occurred in spite of the application of such precautions. Art. 55 sec. 1 CO states that the principal may claim recourse from the person who caused such damage to the extent that the latter is liable in his own right.

15 Art. 684 sec. 1 CC requires every owner of land to abstain from any unreasonable act which prejudices his neighbour's property. The neighbour's properties are not only the bordering parcels of land but parcels in a wider ambit. What is a reasonable or respectively an unreasonable impact is judged by an objective and individualised measure. Needs and interests of an average person, the situation and quality of the land as well as customs have to be taken into consideration (art. 684 sec. 2 CC).

16 According to art. 679 CC the injured party has several remedies (damages, injunctions etc.) against a successive owner of the land who exceeds his rights of ownership (art. 684 CC).

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

> **Art. 30 sec. 7 GTL:** "The damage must have been caused as a result of:
> a. the new properties of the organisms;
> b. the reproduction or modification of the organisms; or
> c. the transmission of the modified genetic material of the organisms."

17 According to the GTL (e.g. art. 30 sec. 1 GTL) damage can only be claimed if it has been caused by genetic modifications. This provision specifies the general assumption of an adequate causal link. Art. 30 sec. 7 GTL gives an exhaustive list of what has to be understood under "*damage that is a result of the modification of the genetic material*" (art. 30 sec. 1 GTL).

18 The liability has to be limited to damage that arise as a result of the new properties of the organisms reached through a recombination of the genetic material. The damage can also be caused through reproduction, modification or transmission of the modified genetic material of the organisms. Take for example GM maize that is released into the environment and gets mixed with neighbouring, conventional maize. In such a case the damage that occurs in the conventional field must be covered through art. 30 GTL because it is a result of the transmission of GMOs. If on the other hand e.g. a chemical additive of a herbicide has caused the damage (e.g. through genetic modifications) art. 30 GTL cannot be invoked.

(b) How is the burden of proof distributed?

19 The claimant has to prove the causal link (art. 33 sec. 1 GTL: "It is the responsibility of the person claiming damages to prove cause."). This reflects the general rule of the burden of proof. If this proof cannot be delivered with certainty or the person cannot be charged with this task, the court is free to rely on a proof of preponderant probability.

> **Art. 33 sec. 2 GTL:** "If this proof cannot be provided with certainty or if production of proof cannot be expected of the claimant, the court may be satisfied with preponderant probability. The court may also have the facts determined proprio motu."

20 Different sources of adventitious presence of GMOs are not specifically taken into account. The liable person is exempt from liability if the causal link was interrupted. Art. 30 sec. 8 GTL states:

> "A person is exempt from liability if he or she can prove that the damage was caused by an Act of God or through gross misconduct of the injured party or of a third party."

21 There are no special rules for the allocation of the costs of testing.

22 There is no reversed burden of proof, in the sense that the damage is presumed to be the consequence of the presence of a certain GM crop.

(c) How are problems of multiple causes handled by the regime?

23 There are no special rules for multiple causes or joint liability in the GTL. Liability is channelled to the person subject to authorisation (art. 30 sec. 2 and 4, art. 31 sec. 1 GTL). General civil law provisions (arts. 50–53 CO) are to be applied (art. 30 sec. 9 GTL).

24 If there are several causes and among them only one is causal, but it is unknown which one this may be, we speak of *alternative causality*. According to an old doctrine nobody can be held liable in such a case. Contemporary doctrine pleads for either proportionate liability or for joint and several liability (art. 50 sec. 1 CO).

25 *Cumulative causality* exists in two forms. Firstly, damage occurred as a result of each action and secondly, damage occurred only through a combination of causes.

26 Art. 50 sec. 1 CO states that where several persons *are jointly at fault* (respectively have jointly caused the damage), they shall be jointly and severally liable to the injured party. They may have acted as instigators, principals or assistants. In any case, art. 50 sec. 1 CO is broadly interpreted, so that joint and several liability exists where two or more parties know or ought to have known about the careless behaviour of each other. With such an extensive interpretation, art. 50 CO can be applied in cases with alternative liabilities. The judge, at his discretion, determines whether and to what extent the liable persons have a right of recourse against one another (art. 50 sec. 2 CO in connection with art. 148 CO). Primarily, the judge will take the degree of fault into consideration.

27 Secondly it is possible that several persons act independently of each other and each of them has caused and is at fault for the damage. Each person is liable for the entire damage (art. 51 CO).

28 Art. 51 sec. 1 CO also deals with cases in which several persons are liable to the injured person for the same damage based on different legal grounds, whether in tort (art. 41 CO), contract, or as a result of a legal requirement (arts. 55–58 CO). Each accountable party can be sued and is jointly and severally liable for the whole amount of the damage. Whether and to what extent the liable persons have a right of recourse is decided at the court's discretion (art. 51 sec. 1 and art. 2 CO).

29 Presumably, different claims can be invoked alternatively (*Anspruchskonkurrenz*). Exclusivity of one of several sources of liability is to be assumed

in relation to specific or general norms and when an area is newly and exclusively regulated.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

It is not a fault-based regime. 30

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

(i) Strict liability (*Gefährdungshaftung*)

> **Art. 30 sec. 1 GTL**: "Any person subject to a notification or authorisation requirement, who handles genetically modified organisms in contained systems, releases such organisms for experimental purposes or markets them without permission is liable for damage that occurs during this handling that is a result of the genetic modification."

Art. 30 sec. 1 GTL allows for the application of strict liability for damage resulting from handling GMOs in contained systems, during releases for experimental purposes or from putting them into circulation without authorisation (see also Chapter I.1). Handling covers all sorts of activities. It is of no significance whether the GMOs are defective or not. Concerning handling with pathogenic organisms, art. 59a bis of the Environment Protection Law contains an identical strict liability effect. 31

> **Art. 30 sec. 2 GTL**: "The person subject to authorisation is solely liable for any damage that occurs to agricultural or forestry enterprises or to consumers of products of these enterprises through the permitted marketing of genetically modified organisms, that are a result of the modification of the genetic material, if the organisms:
> a. are contained in agricultural or forestry additives; or
> b. stem from such additives."

A strict liability regime covers the damage of agricultural and forestry enterprises that arise from GMO activity and the damage to consumers through products of such enterprises. It is assumed that the GMOs were put in circulation with permission and that the GMOs are part of additives of agriculture or forestry or stem from such materials. Please consult Chapter I.1. for further comments on art. 30 sec. 2 GTL. 32

(ii) Strict liability/product liability

> **Art. 30 sec. 4 GTL:** "If damage is caused by any other permitted marketing of genetically modified organisms as a result of the modification

> of the genetic material, the person subject to authorisation is liable if the organisms are faulty. He or she is also liable for a fault which, according to the state of knowledge and technology at the time when the organism was marketed, could not have been recognised".

33 Please consult Chapter I.1. for general comments on art. 30 sec. 4/5 GTL. The liability of art. 30 sec. 4 GTL is strict in the sense that the person subject to authorisation is liable in general for the damage caused as a result of a defective GMO. It is controversial in the doctrine if it is a liability for the consequences (*Kausalhaftung*) or a strict liability in the sense that the person who gets the benefits out of a potentially dangerous activity (that is welcomed by society) should also carry the risks (*Gefährdungshaftung*). It is to be taken into account that the state-of-the-art defence is not admitted. The person subject to authorisation is also liable for damage resulting from defects that could not have been recognised at the time when the organism was put in circulation. Only *force majeure* or gross misconduct of the injured party or of a third party can exonerate the injurer (art. 30 sec. 8 GTL).

> **Art. 30 sec. 5 GTL**: "Genetically modified organisms are defective if they do not provide the safety that is to be expected, taking into consideration all situations; in particular the following should be considered:
> a. the way in which they are presented to the public;
> b. the use that can reasonably be expected of them:
> c. the time at which they were marketed."
>
> **Art. 30 sec. 6 GTL**: "A product made from genetically modified organisms is not considered defective for the sole reason that an improved product has later been marketed."

34 Art. 30 sec. 5 GTL gives a definition for a defective GMO. The definition of "defect" in the GTL corresponds to the one in the Federal Product Liability Act (SR 221.112.944). The wordings in art. 30 sec. 5 GTL and art. 4 sec. 1 of the Federal Product Liability Act are identical.

35 Art. 30 sec. 5 GTL describes defective organisms as organisms that cannot offer the security standards that they are expected to satisfy taking into consideration all circumstances. Therefore the judge has to be guided by the measure that counts for conventional organisms. This also means *inter alia* that a non-effect of a GMO can be a defect and that respect of legal security provisions is not coercive evidence for the freedom from defects. Further it means that evidence of a genetic modification is not evidence of a defect. The manner the GM products are presented to the public, the reasonable use and the date they are put in circulation have to be considered. Information given to the recipient according to art. 15 GTL and labelling according to art. 17 GTL are to be remembered in this context. For example collateral effects of a medical drug are not a defect if the patient had been informed about these effects. The authorised person is obliged to notify new findings to the authority and this could lead to a re-judgment of risks (art. 13 sec. 2 GTL). This can be the case

with the appearance of genetic instability. This implies that there is a duty of observation on the developments of GM products.

A GM product is not defective only because a better product is introduced into the market at a later stage (art. 30 sec. 6 GTL). 36

The wordings in art. 30 sec. 6 GTL and art. 4 sec. 2 of the Federal Product Liability Act are identical. 37

(iii) Defences

State of the art defence (art. 30 sec. 4 GTL)

The liability in art. 30 sec. 4 GTL is stricter than in the Product Liability Act because the state-of-the-art defence is not accepted in the GTL (art. 30 sec. 4 GTL; art. 1 ff. in connection with art. 4 sec. 1 lit. e of the Product Liability Act). Defects under the GTL are for example, unforeseen genetical modifications of the GMOs after release into the environment, unforeseeable generation of allergies, unforeseeable emergence of a new virus or a resistance. The inclusion of development risks brings about a liability for unknown risks. Further, difficult problems of proof can be circumvented. 38

General defences for all liabilities

> **Art. 30 sec. 8 GTL:** "A person is exempt from liability if he or she can prove that the damage was caused by an Act of God or through gross misconduct of the injured party or of a third party."

The causal link can be interrupted if the damage is caused through *force majeure*, through gross misconduct of the injured party or of a third party. In such cases there is no liability of the person subject to authorisation (art. 30 sec. 8 GTL). 39

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

There are no other compensation mechanisms. 40

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

No. 41

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

The relationship between a liability for consequences and a fault-based liability (e.g. art. 41 CO) is exclusive in favour of the liability for consequences. Provisions on liabilities for consequences rule out fault-based liability provi- 42

sions because the former are looked at as *lex specialis* to the latter by the Federal Court of Justice (see no. 7).

43 In general, there is competition between different liabilities for consequences and the injured party is free to choose the remedy (*Anspruchskonkurrenz*). However, if the interpretation shows that one provision is *lex specialis* to the other, then the provision that is *lex specialis* is applicable.

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

(i) Overview

44 The GTL does not define damage; it refers to the general liability law (art. 30 sec. 9 GTL). Damage is the unwilful loss of property. Liability under art. 30 GTL covers actual loss of property, personal and environmental injury. Purely economic damage is not covered. However, a lot of so-called pure economic damage can be defined as a loss of wealth caused by an actual loss (e.g. decrease of the market price of a non-GMO plant through GMO pollen flow). The following paragraphs go more into details.

(ii) Personal injury and actual loss of property

45 Personal injuries may for example manifest as allergies against genetically modified food. A farmer may suffer actual loss of property because the agricultural co-operative mixed GMO and conventional products. Another example is pollen flow. A farmer cultivates GMO wheat and through pollen the field of a conventional or organic farmer is contaminated. The latter suffers loss of income and/or loss of reputation because he cannot sell his products anymore under an organic food label. However, "damage" only occurs if tolerance values have been exceeded.

(iii) Environmental injury

> **Art. 31 sec. 1 GTL**: "The person who is liable for handling genetically modified organisms must also reimburse the costs of necessary and appropriate measures that are taken to repair destroyed or damaged components of the environment, or to replace them with components of equal value."

46 Art. 31 sec. 1 GTL states that the person who is liable for the handling of the GMOs also has to bear the costs of the necessary and adequate measures to reconstitute or substitute destroyed or damaged components of the environment. An environmental injury may happen with the genetic pollution of a protected area and landscape. Further, it has to be taken into consideration that such damage is often irreversible. For further comments on environmental damage see Chapter I.6.

> **Art. 31 sec. 2 GTL**: "If the destroyed or damaged environmental components are not the object of a right in rem or if the eligible person does not take the measures that the situation calls for, damages shall be awarded to the community responsible."

The right to compensation accrues to the party entitled *in rem* or – if there is no private right or the eligible person does not act – to the public institution (art. 31 sec. 2 GTL). 47

(iv) Pure economic losses

Pure economic losses can arise when the organic agriculture of a whole region suffers from a bad reputation because of genetic pollution in the fields of one of the farmers and – as a consequence – consumers or traders buy less from all the organic farmers in the region. According to art. 1 GTL the purpose of the GTL is to protect humans, animals and the environment from abuses of gene technology and to serve their welfare. In particular it protects the health and safety of humans, animals and the environment, conserves biological diversity and the fertility of the soil, ensures respect for the dignity of living beings, enables freedom of choice for consumers, prevents product fraud and promotes public information (art. 1 sec. 2 GTL). It can be concluded that the GTL aims to protect persons, properties and the environment from misuse, however, the protection of pure economic loss does not lie in its purpose. Therefore, pure financial losses such as damage suffered from feared GMO presence in non-GM crops are not covered by the GTL. 48

The general civil and product liability provisions do not, in general, cover pure financial losses either. 49

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognised as compensable, or is proof of actual admixture required?

The proof of actual admixture is required. Admixture must exceed tolerance values in order to be relevant for a pollution of GMO free through GMO products. Art. 17 sec. 4 bis of the Ordinance concerning Seeds (SR 916.151) states that seeds with not more than 0.5% GMO must not be declared as GMO. Another example is art. 23 sec. 2 of the Ordinance concerning Animal Feed (SR 916.307) that states a tolerance value of 3% GMO in the basic substances and 2% in mixed products. If proof of actual admixture cannot be demonstrated or the admixture lies within tolerance values, it is pure economic loss and thus cannot be recovered. 50

(c) Where does the scheme draw the line between compensable and non compensable losses?

With regard to compensable losses see no. 44 ff. The loss of farmers whose plants have not been contaminated are not covered since it is a pure economic loss. 51

(d) Which are the criteria for determining the amount of compensation?

52 Again, the GTL does not contain any criteria for measuring the amount of compensation. The general principles are applicable (art. 30 sec. 9 GTL). The judge determines the nature and amount of compensation and thereby will take into consideration the circumstances as well as the extent of the fault (art. 30 sec. 9 GTL in connection with art. 43 sec. 1 CO). There might be cases in which the value of the whole product is covered and others in which only the depreciation can be compensated. It depends on the effectively sustained loss. For example, an organic farmer is not expected to cultivate GMO maize on his land if he finds out that the seeds were GMO infiltrated. In such a case he should not be compensated with the depreciation of the harvest but with the reconstitution and the net value of the missing harvest. According to general civil liability law, the claimant is obliged to take necessary actions in order to minimise the loss. Private contractual agreements can bind the contracting parties. Indirect costs are taken into account.

(e) Is there a financial limit to liability?

53 There is no financial limit to liability.

54 According to the general liability provisions the judge can decrease or even deny compensation if the claimant is at fault (art. 41 sec. 1 CO). Further, he can decrease compensation if the liable person is facing financial distress caused by the compensation that he is required to pay (art. 30 sec. 9 GTL in connection with art. 44 sec. 2 CO).

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

55 The Federal Council can issue an ordinance that regulates advance cover through a compulsory liability insurance or any other form (art. 34 GTL). In the Ordinance concerning the Handling of Organisms in the Environment (SR 814.911) the Federal Council requires the applicant to provide evidence of sufficient financial resources to detect, avoid or eliminate bothersome or damaging effects. Art. 10 sec. 2 of this ordinance asks for a guarantee up to CHF 20 million. The guarantee can be established through an insurance company that is allowed to offer its services in Switzerland or through the accomplishment with equivalent means (art. 10 sec. 3 of the Ordinance concerning the Handling of Organisms in the Environment). The Federation, its statutory corporations and enterprises can be exempted from these guarantee duties (art. 10 sec. 4 of the Ordinance concerning the Handling of Organisms in the Environment).

(g) Which procedures apply to obtain redress?

There are no special procedures foreseen in order to obtain redress. General liability rules are applicable (art. 50 f. CO). According to its nature, redress by the liable person assumes the existence of a primary claim. Further, it is also noted, that the only liable person for the damage caused by agriculture or forestry enterprises or for the damage to consumers by products of such enterprises can seek redress from persons who dealt with the GMOs inadequately or contributed in another manner to the emergence or diffusion of the damage (art. 30 sec. 2 GTL). Art. 50 sec. 1 CO states that where several persons are jointly at fault, they shall be jointly and severally liable to the injured party. The judge, at his discretion, determines whether and to what extent the liable persons have a right of recourse against one another (art. 50 sec. 2 CO in connection with art. 148 CO). Primarily, the judge will take the degree of fault into consideration. For further comments on solidarity and redress see Chapter I.2. 56

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

Injunctive relief can be obtained according to the procedural rules of the cantons (there is yet no federal civil procedure). The GTL has no provisions on injunctive relief. 57

5. Compensation funds

Neither mandatory nor voluntary compensation funds and plans exist up to now. 58

6. Comparison to other specific liability or compensation regimes

The specific liability provisions are the result of an intense political process. The combinations of liability provisions are as such unique. The strict liability of art. 39 sec. 1 GTL also exists for the handling of pathogenic organisms in art. 59a bis of the Environment Protection Law (SR 814.01). A channelling of the liability and the establishment of a strict liability as such (in art. 39 sec. 1 and 2 GTL) also exist for example in art. 59a of the Environment Protection Law (for the entrepreneur) and in the Federal Product Liability Act (for the producer). The fault-based compensation element for defective organisms is comparable to the Product Liability Act (e.g. the same definitions for defects). However, the GTL provides a stricter liability because it includes a liability for defects that could not be recognised at the time the GMO was put in circulation (development risks). 59

According to art. 31 sec. 1 GTL, "[t]he person who is liable for handling GMOs must also reimburse the costs of necessary and appropriate measures that are taken to repair destroyed or damaged components of the environment, or to replace them with components of equal value." Similar liabilities for 60

environmental damage also exist in a few other laws, for example in art. 18 sec. 1ter of the Federal Law on the Protection of Nature and the Native Land (SR 451, *Bundesgesetz über den Natur und Heimatschutz*). Another example can be found in the Federal Law on Fishing (SR 923). Art. 15 sec. 3 of the Federal Law on Fishing states that the beneficiary of the compensation for the re-establishment of the original situation has to make restorations as soon as possible. Further, art. 59a bis of the Federal Law on the Protection of the Environment deals with the handling of pathogenic organisms. Art. 59a bis of the Environment Protection Law is similar to the rules for GMOs in the GTL. Art. 59a bis sec. 9 of the Environment Protection Law also states that the liable person has to bear the costs of the environmental damage in order to repair damaged or destroyed components of the environment or to replace them with components of equal value.

II. General liability or other compensation schemes

61 Since there is a specific liability regime in Switzerland, the questions under this heading need not be answered.

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

62 There are no specific rules that cover costs associated with sampling and testing for GMO presence.

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

63 There are no industry-based rules yet. According to the general rules the claimant, respectively the injured party, has to bear these costs.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

64 These costs are only recoverable if the tests prove actual GMO presence.

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

65 There are no special jurisdictional or conflict of laws rules for cross-border GMO cases, thus the Lugano Convention (art. 5 sec. 3) and the Swiss Federal Private International Law Statute (SR 291, PIL Statute) are applicable.

Switzerland ratified the Cartagena Protocol on Biosafety (SR 0.451.431) and has executed it with the Cartagena Ordinance governing primarily the export of GMO (Ordinance concerning the Cross-border Transfers of GMO, Cartagena-Ordinance, SR 814.912.21). Companies must obtain authorisation from the importing country prior to the shipment of GMOs, and are obliged to provide detailed information on the product. 66

2. General rules of jurisdiction and choice of law

The Lugano Treaty on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters (SR 0.275.11) is applicable in determining jurisdiction when members of this Treaty are involved (specif. art. 5 sec. 3). If other states are involved, the PIL Statute defines jurisdiction. If Swiss Courts are compelled the PIL Statute defines applicable law. 67

Art. 129 PIL Statute contains the general rule for the jurisdiction: 68

> "1. Lawsuits based on unlawful acts are subject to the jurisdiction of the Swiss courts at the domicile of the defendant or, if he or she has none, at the place of his or her habitual residence or business establishment.
>
> 2. If the defendant has neither his or her domicile, nor his or her habitual residence, nor his or her business establishment in Switzerland, jurisdiction lies with the Swiss court where the act occurred or where it had its effect.
>
> 3. If several defendants are subject to Swiss jurisdiction, and if the lawsuits are based on substantially the same facts and law, each court has jurisdiction over all defendants; the court seized first has exclusive jurisdiction."

Art. 132 PIL Statute contains the general rule for the applicable law in the case of a choice of applicable law and art. 133 PIL Statute contains the general rule for the applicable law if no applicable law has been chosen. 69

> **Art. 132 PIL Statute:** "The parties may always agree after the damaging event that the law of the place of the court applies."
>
> **Art. 133 PIL Statute:** "1. If the damaging and the damaged or injured parties have their habitual residences in the same country, claims based on unlawful acts are governed by the law of that country.
>
> 2. If the damaging and the damaged or injured party do not have their habitual residences in the same country, the law of the country where the unlawful act was committed is applicable. If the effect did not occur in the country where the unlawful act was committed, the law of the country where the effect occurred is applicable if the damaging party should have expected the effect to occur in that country.
>
> 3. Notwithstanding subsections 1 and 2, claims based on an unlawful act violating an existing legal relationship between the damaging and the

> damaged or injured party are governed by the law that applies to the pre-existing legal relationship."

70 If more than one person is liable, art. 140 PIL Statute states:

> "If more than one person has participated in an unlawful act, for each of them the applicable law is determined separately and regardless of the nature of their participation."

Economic Loss Caused by GMOs in the United Kingdom: England & Wales*

*Ken Oliphant***

I. Special liability or compensation regimes

1. Introduction

There is currently no civil liability or other compensation regime applying specifically to liability for GMOs (cf. the administrative liability scheme described below), but at the time of writing the Government was engaged in a public consultation about proposals for introducing a statutory redress scheme in respect of economic damage resulting from GMO presence in non-GM crops. There are no plans to introduce new statutory liability or compensation provisions for other damage caused by GMOs, though liability may arise in some cases under existing legal principles. The proposed scheme relates to England only; it is for the devolved authorities in Wales, Scotland and Northern Ireland to develop their own policy in the area. 1

The current proposals are the outcome of a rather protracted political process. The Government announced in 1999 that it saw merit, on grounds of public confidence, in specific legal provisions for liability in respect of environmental damage caused by the release of GMOs,[1] but it refrained from action at that time, pending the outcome of deliberations about possible EU legislation. In the same year, and the year after, private members' bills in Parliament sought to create a new statutory liability but both were unsuccessful.[2] In April 2001, 2

* The following report focuses on the law of England and Wales only. References to Scots law are only included where appropriate. On the state of Scots law, see e.g. *M. Ruskell*, GM Liability Who Should Carry the Can? (2003, available at http://www.scottish.parliament.uk/business/bills/pdfs/mb consultations/gm consultation.pdf) 10 11.

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[1] Department for Environment, Food & Rural Affairs, The Government's Response to the Fifth Report of the Select Committee on Environmental Audit. Genetically Modified Organisms and the Environment: Co Ordination of Government Policy (1999) Cm 4528, §§44 45 <http://www.defra.gov.uk/environment/response/gmo99/index.htm>.

[2] Genetically Modified Food and Producer Liability Bill, HC Bill 128, Session 1998 99, available online at http://www.parliament.the stationery office.co.uk/pa/cm199899/cmbills/128/1999128.

in a Parliamentary written answer, the Secretary of State for the Environment (Michael Meacher MP) observed that liability for damage caused by GM crops was being addressed at both European and UK levels, and announced his intention to consider options for possible new liability provisions.[3] In November 2003, while the Government was still considering its position, its policy advisors on matters of biotechnology, the Agriculture and Environment Biotechnology Commission (AEBC), recommended the introduction of special arrangements for compensating farmers who suffered financial loss as a result of their produce exceeding, through no fault of their own, the 0.9% threshold beyond which produce must be labelled as 'GM'.[4] It made no recommendation as to who should fund the proposed scheme, which it envisaged as a temporary expedient pending the development in due course of a private insurance market; again, the Commission left open the question of who should be responsible for paying the insurance premiums. The Commission also considered the related issue of environmental liability, recommending the adoption of the administrative liability model of the then draft EU Environmental Liability Directive, under which liability for the costs of remedying environmental damage arises on a 'polluter pays' basis.[5] At broadly the same time, legislation to establish liability for environmental harm caused by the deliberate release of GMOs was also recommended by other Government advisors.[6]

3 In March 2004, which also saw another unsuccessful private members' bill on liability for GM crops,[7] the new Secretary of State for the Environment (Margaret Beckett MP) announced the Government's policy on GM crops in a ministerial statement in Parliament, suggesting (*inter alia*) a compensation scheme funded by the GM sector, and making it clear that no funding could be expected from the Government or producers of non-GM crops.[8] In July 2004, the Department for Environment, Food, & Rural Affairs (DEFRA) announced a two-part consultation exercise on (*inter alia*) options for providing compensation to non-GM farmers who suffer financially because a GM presence exceeds the labelling threshold adopted by the EU.[9] Following the first part of the consultation, consisting of a series of workshops, in 2005, DEFRA drafted

htm, and Genetically Modified Food and Producer Liability (No 2) Bill, HC Bill 184, Session 1999 2000, available online at http://www.parliament.the stationary office.co.uk/pa/cm199900/cmbills/184/2000184.

[3] Hansard, 9 April 2001, col. 379W.

[4] AEBC, GM Crops? Coexistence and Liability (2003).

[5] Recommendation 6. As an interim step, the AEBC recommended that Part VI of the Environmental Protection Act 1990 should be amended so that it would no longer be necessary to obtain a conviction in the criminal courts before being able to require environmental remediation: §345 and Recommendation 7.

[6] Joint Nature Conservation Commission, Position Statement on Genetically Modified Organisms in the Environment, updated 15 Oct 2003 <http://www.jncc.gov.uk/page 2992>.

[7] Genetically Modified Organisms Bill, HC Bill 31, Session 2003 04, available online at http://www.publications.parliament.uk/pa/cm200304/cmbills/031/2004031.pdf. Introduced by Gregory Barker MP.

[8] GM Policy Statement, Hansard, 9 March 2004, col. 1381 (Margaret Beckett).

[9] DEFRA, News Release, 16 July 2004, available online at http://nds.coi.gov.uk/content/detail.asp?ReleaseID 123557&NewsAreaID 2.

a Consultation Paper containing proposals on managing the coexistence of GM and non-GM crops. This was released in July 2006[10] and contained proposals relating to the establishment of a new redress scheme, DEFRA having concluded that it would be undesirable to require those seeking compensation to engage in litigation through the courts.[11] DEFRA predicted that the value of redress claims is likely to be 'relatively low'.[12] As yet, no concrete reforms have ensued from the consultation.

As noted above, an administrative liability scheme already applies to damage to the environment arising from the escape or release from human control of GMOs. But the scheme is of very limited scope. Under Part VI of the Environmental Protection Act 1990, a person who contravenes the duties that the Act imposes in connection with (*inter alia*) the release or marketing of GMOs – for example, failure to comply with risk assessment requirements[13] or releasing GMOs when there is a risk of damage to the environment as a consequence, despite the precautions that can be taken[14] – may be convicted of an offence[15] and required to take such steps as the court deems appropriate to remedy matters.[16] The Act also provides for the Secretary of State to arrange for reasonable steps to be taken towards remedying harm caused by the offence and to recover the cost from any person convicted of it.[17] Only a person convicted of one of the specified offences can be made to remedy, or bear the cost of remedying, the harm caused by the GMOs. Proceedings are by way of criminal prosecution initiated by the state, not civil action initiated by an individual suffering loss. Because of this, and the regime's limited scope, I shall not consider it further in this report. 4

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

Under the proposed redress scheme, claimants will only need to demonstrate a GM presence above 0.9% in their crop through no fault of their own. There is no need to establish the source of the GM presence, as would be necessary under a liability scheme. 5

[10] DEFRA, Consulation on proposals for managing the coexistence of GM, conventional and organic crops (2006), available online at: http://www.defra.gov.uk/environment/gm/crops/pdf/gmcoexist condoc.pdf.
[11] DEFRA (supra fn. 10) §161.
[12] DEFRA (supra fn. 10) §139.
[13] Sec. 108.
[14] Sec. 109(4).
[15] Sec. 118.
[16] Sec. 120.
[17] Sec. 121.

(b) How is the burden of proof distributed?

6 The burden of proof appears to rest on the claimant, but it is immaterial where the adventitious GM presence comes from.

(c) How are problems of multiple causes handled by the regime?

7 It is immaterial whether the GM presence has multiple causes. The claimant will only need to establish that it exceeds the threshold.

3. Type of regime

(a) If it is a fault based liability regime, what are the parameters for determining fault, and how is the burden of proof distributed?

8 The proposed redress scheme is not a fault-based liability regime.

(b) If it is a strict liability regime, is there still a set of defences available to the actor?

9 The proposed redress scheme is not a strict liability regime. Although the Consultation Paper talks of making GM seed companies 'strictly liable',[18] it appears that this means only that they may be required to bear the cost of compensation payments irrespective of fault, and not that the claimant must identify a particular defendant who has caused the GM presence in question. The Consultation Paper notes that it may be possible in many cases to identify the company whose GM seed has given rise to the redress claim, but warns that 'a desire to target the redress burden must be weighed against the simplicity and cost of running the scheme.'[19]

(c) If it is not a liability regime as such, but any other variety of compensation mechanism, please describe its nature and functioning.

10 The precise mechanism by which the redress is to be delivered has yet to be determined (see below), but DEFRA has already given detailed consideration to eligibility criteria and the economic losses that would be recoverable. The latter is considered in Section I, 4 below.

11 As for eligibility, the farmer must be able to demonstrate that the GM presence beyond the 0.9% threshold was through no fault of their own. The Consultation Paper envisages that farmers may therefore need to produce evidence that non-GM seed was used, cropping plans were not altered in a way that compromised the required separation distance under the coexistence regime, etc.[20] It has yet

[18] DEFRA (supra fn. 10) §§165 166.
[19] DEFRA (supra fn. 10) §157.
[20] DEFRA (supra fn. 10) §150.

to be determined whether a claimant's 'contributory negligence' should reduce the redress payable, or whether even a minor failure to meet a requirement, which it can be demonstrated would have had no meaningful effect, will necessarily invalidate the whole claim.[21]

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

The proposed redress scheme applies only to affected crops (GM presence > 0.9%). The DEFRA Consultation Paper says nothing about losses consequential on seed production being affected by GMOs. 12

(e) Is the liability regime exclusive, or does it overlap or coincide with any other specific or general liability regime in your country?

It is intended that the proposed redress scheme will exist alongside existing tort law remedies. Litigation will remain an option for claimants who do not want to use the redress scheme or are dissatisfied with the settlement offered.[22] 13

4. Damage and remedies

(a) How is damage defined and measured under the system(s) you described?

Redress under the proposed scheme is for economic losses attributable to intended regulatory requirements, rather than ordinary market forces. The 'basic issue' is said to be that 'crops grown as non-GM (conventional or organic) could be worth less if they must be sold as "GM" because they have a GM presence above the EU 0.9% labelling threshold.'[23] Redress will only be available if the GM presence in non-GM crops exceeds that threshold as it would not be appropriate to have different thresholds for redress and coexistence purposes.[24] The Consultation Paper implicitly rejects the view of some members of the AEBC[25] that compensation should also be available for economic loss arising from breach of the 0.1% threshold applied to organic produce by the major certifiers in the UK. 14

Losses incurred 'further up the supply chain' are not to be covered, as the expectation is that normal contractual arrangements will govern the relationship between farmer and crop purchaser.[26] 15

[21] DEFRA (supra fn. 10) §152.
[22] DEFRA (supra fn. 10) §161.
[23] DEFRA (supra fn. 10) §137.
[24] DEFRA (supra fn. 10) §138. The GM presence is normally to be assessed on a 'whole field' basis: §142. In the case of crops not sold by the field but individually, presence will be assessed by sampling the closest row to the GM crop, and then another halfway into the field. If both tests are positive, the whole field is deemed 'GM', but if only the first test is positive, then only crops in the first half of the field are deemed 'GM': §143.
[25] AEBC (supra fn. 4) §252.
[26] DEFRA (supra fn. 10) §149.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

16 Proof of an actual GM presence above the 0.9% threshold is required, so losses resulting from the mere fear that the farmer's products are no longer GM free are not covered.

(c) Where does the scheme draw the line between compensable and non compensable losses?

17 Redress is limited to non-GM farmers who can demonstrate that there is a GM presence above 0.9% in their own crop. Consequently, other farmers who suffer losses because consumers fear that the entire region is affected are not eligible under the scheme.

(d) What are the criteria for determining the amount of compensation?

18 Compensation should only be available for 'direct financial loss from individual incidents.'[27] The general or default rule is that the compensable loss is the difference in crop value where a crop has to be sold as 'GM' instead of non-GM or organic.[28] If the crop has no value as 'GM', for example, because there is no GM market in which it can be sold to mitigate the loss, the loss is the whole of the non-GM or organic price that has to be foregone.[29] If the crop is intended as a conventional forage crop, it may still be fed to the farmer's own animals without having to label associated products (meat, milk or eggs) as 'GM', and there is no necessary economic loss. If there should be economic loss because (e.g.) the farmer is subject to a supply contract that stipulates the use of non-GM feed, that would be attributable to the market rather than the regulatory requirement, and DEFRA does not consider that the Government should provide redress.[30] However, if the crop is intended to be an organic forage crop, EU organic standards prevent the farmer from feeding it to his own animals, and DEFRA foresees redress being made available in such situations.[31] It has not yet formed an opinion on redress for additional losses such as costs flowing from testing the affected crop for GM presence, storing the crop separately, or longer than intended, or extra transport needs.[32] Certain other losses it considers should not be part of the proposed redress scheme, for example, the loss of subsequent business from a buyer as a result of being unable to fulfil a previous supply contract, losses associated with consumer decisions to avoid or pay a reduced price for non-GM crops grown in the vicinity

[27] DEFRA (supra fn. 10) §139.
[28] DEFRA (supra fn. 10) §140.
[29] DEFRA (supra fn. 10) §141. The example given is sweetcorn maize grown as non GM, where GM maize is grown only as a forage crop and there is no market in which it is traded.
[30] DEFRA (supra fn. 10) §144.
[31] DEFRA (supra fn. 10) §145.
[32] DEFRA (supra fn. 10) §146.

of GM crops, and the removal of organic certification. DEFRA considers that 'losses resulting from voluntary standards or market-led decisions should not be covered by the redress mechanism, although compensation for these losses could still be sought through legal proceedings.'[33]

(e) Is there a financial limit to liability?

The Consultation Paper does not propose any fixed financial limit to the redress payable, though, as the redress may well be restricted to loss of crop value, the value of the crop may denote the effective maximum of compensation payable. 19

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as compulsory liability insurance), and/or are farmers required to take out first party insurance which would cover such losses?

Whether the GM seed companies pay in advance (e.g. to establish a fund from which redress claims are paid) or on a case-by-case basis has yet to be resolved.[34] 20

(g) Which procedures apply to obtain redress?

Assuming the proposed redress scheme is introduced by statute (see below), DEFRA envisages an adjudication process to determine the eligibility of redress claims, including an appeal or arbitration mechanism.[35] But it has not yet considered in detail the procedures that would apply, beyond saying that the arrangements should be 'as simple as possible, to minimise the burden on farmers wishing to make a claim, to ensure that redress can be paid without undue delay, and to minimise bureaucracy and costs.'[36] 21

(h) Do these systems also include possibilities to obtain injunctive relief, either before or after admixture has happened?

The proposed redress scheme contains no provision for allowing the grant of injunctive relief, whether before or after admixture. 22

5. Compensation funds

(a) Are there any compensation funds?

As explained above, DEFRA has proposed the introduction of a redress scheme for economic losses suffered by non-GM farmers as a consequence of a GM 23

[33] DEFRA (supra fn. 10) §148.
[34] The options are set out at DEFRA (supra fn. 10) §166.
[35] DEFRA (supra fn. 10) §§151 and 168.
[36] DEFRA (supra fn. 10) §167.

presence in their crop of more than 0.9%. Eligibility criteria and potential entitlements are as set out above. In its Consultation Paper, DEFRA considers the option of both a voluntary industry led scheme[37] and a statutory redress mechanism.[38] The former would have the advantage that it could be established more quickly and provide more flexibility than a compulsory scheme, whilst being likely to provide an incentive for the industry to ensure that GM growers comply with the coexistence rules, and promoting public confidence.[39] But a statutory scheme would have to be considered if the industry failed to set up an acceptable scheme.[40] DEFRA has asked for views on which option should be preferred.

(b) How are these funds financed (e.g. in the form of a levy on sown or harvested GM crops, or a levy on the sale of GM seeds, or a levy on fees to organic certification bodies)? Which operator groups are the main contributors to the fund (e.g. GM crop growers, traditional farmers, seed importers or developers, biotech industry)?

24 This is a matter that is yet to be finally resolved, though the Government has consistently maintained that the compensation should be funded by the GM sector, not by the state or by non-GM farmers. However, as the Consultation Paper notes, funding by the GM sector could come from a number of different sources: (1) GM farmers who do not comply with the proposed coexistence measures, (2) all farmers growing GM crops, or (3) GM seed companies. The first option would have the advantage of targeting farmers most likely to be the cause of the excessive GM presence in the affected crops, and so provide an incentive to comply with the coexistence measures, but it would not cover cases where the excessive GM presence arises without fault, or where fault cannot be specifically attributed.[41] The second option would spread the burden evenly among all GM growers, but would provide no direct incentive for GM growers to comply with coexistence measures; it could also be said to penalise unfairly GM farmers who do comply.[42] The third option would give the GM companies a clear incentive to ensure an effective coexistence regime (e.g. by recovering contractual indemnities from GM farmers who do not comply with the rules) and should increase public confidence.[43] It would be possible to apply the financial burden equally to all GM seed companies, but would be potentially fairer to do so on a differentiated basis (e.g. market share). Although it might be possible in many cases to identify the company whose GM seed gave rise to the redress claim, targeting the financial burden in such a way might result in undesirable costs and complexity.[44] Consultees were asked for their views on such issues.

[37] DEFRA (supra fn. 10) §§162 4.
[38] DEFRA (supra fn. 10) §§165 9.
[39] DEFRA (supra fn. 10) §162.
[40] DEFRA (supra fn. 10) §165.
[41] DEFRA (supra fn. 10) §154.
[42] DEFRA (supra fn. 10) §155.
[43] DEFRA (supra fn. 10) §156.
[44] DEFRA (supra fn. 10) §157.

(c) Is there any contribution granted by the national or regional authorities?

No, the Government has consistently maintained that compensation must be funded by the GM sector, not by the state. 25

(d) Is the contribution to the fund mandatory or voluntary?

A voluntary industry-led scheme is still an option,[45] though the Government would consider a compulsory scheme if the industry did not set up a voluntary scheme, or its scheme was deemed unacceptable.[46] 26

(e) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

This is a question of detail that has yet to be addressed. 27

(f) How are the funds operated? Which body is in charge of managing the fund and of deciding about justified claims? Which procedures apply to obtain compensation of loss?

The object is to ensure that claims are settled 'fairly promptly', reducing the cost, bureaucracy and uncertainty that would result if claims were left to be resolved through legal proceedings.[47] 28

(g) Are there any provisions for recourse against those responsible for the actual cause of the loss?

As noted above, it remains an option to target the GM seed company responsible for the excessive GM presence, though the Consultation Paper warns of the cost and complexity that might result. There is no proposal to target individual GM farmers who are responsible, but, if the scheme is funded by the seed companies, it would appear to be open to them to provide for appropriate indemnities from individual farmers in their seed supply contracts. 29

6. Comparison to other specific liability or compensation regimes

So far as I can see, the proposed scheme would have no exact parallel in English law. 30

[45] DEFRA (supra fn. 10) §§162 4.
[46] DEFRA (supra fn. 10) §165.
[47] DEFRA (supra fn. 10) §147.

II. General liability or other compensation schemes[48]

1. Introduction

31 As noted above, the DEFRA Consultation Paper expressly contemplates the continued availability alongside the new redress scheme of existing remedies under the general law of tortious liability. The principal heads of claim would be (a) negligence, (b) public nuisance, (c) private nuisance, and (d) the rule in *Rylands v Fletcher*. (The last is regarded[49] as a subset of private nuisance but has its own distinct requirements.) These are all common law actions, but may be affected by statute insofar as the latter gives authority for the defendant's actions: statutory authorisation is a general defence to tortious liability, provided no reasonably preventable injury is caused.[50] In some circumstances, it may also be possible to rely on the statutory product liability claim under the Consumer Protection Act 1987 (implementing the EC Product Liability Directive), but I do not propose to address this here as the issues are substantially the same as those arising in other EU jurisdictions. Nor shall I consider the possibility of judicial review of administrative decisions relating to GMOs.[51]

32 Although the application of these common law liabilities to GM cross-pollination is 'untested and uncertain' in this country,[52] the experience of other common law jurisdictions gives some indication of how the law might develop here.[53] In the discussion below, particular attention will be paid to a recent decision of a Canadian court, *Hoffman v Monsanto Canada Inc*,[54] in which the arguability of various common law liabilities was considered in relation to a case of (alleged) GMO 'contamination' of canola (rapeseed) intended to be marked as organic. The issue arose in the course of the court's consideration of the claimants' application for the certification of a class action which they sought to bring on behalf of all organic grain farmers in the province of Saskatchewan. Certification of the class action was dependent on the claimants' establishing that (*inter alia*) their statement of claim disclosed a reasonable cause of action against the defendants. For the purposes of the hearing, all the factual allegations in the claimants' plead-

[48] See generally *M. Lee/R. Burrell*, Liability for the Escape of GM Seeds: Pursuing the 'Victim' (2002) 65 MLR 517 and *C. Rodgers*, Liability for the Release of GMOs into the Environment: Exploring the Boundaries of Nuisance, [2003] CLJ 371.

[49] *Cambridge Water Co Ltd* v *Eastern Counties Leather plc* [1994] 2 AC 264.

[50] *Geddis v Proprietors of Bann Reservoir* (1878) 3 App Cas 430.

[51] On which, see *R v Secretary of State for the Environment, Transport and the Regions, ex p Watson* [1999] Env LR 310.

[52] DEFRA (supra fn. 10) 137.

[53] I shall not make specific mention of the case law in the United States, as other Commonwealth jurisdictions tend to be a better guide to possible developments in English law. Relevant US cases include *In re StarLink Corn Products Liability Litigation, Kramer v Aventis CropScience USA Holding Inc* (2002) 212 F Supp (2d) 828 and *Sample v Monsanto Co* (2003) 283 F Supp (2d) 1088.

[54] 2005 *Saskatchewan Court of Queen's Bench* (SKQB) 225, [2005] 7 WWR 665, affirmed [2007] 6 WWR 387. For background, see *J. M. Glenn*, Footloose: Civil Responsibility for GMO Gene Wandering in Canada, (2004) 43 Washburn LJ 547.

ed case were assumed to be true. Nevertheless, Smith J concluded that the statement of claim disclosed no reasonable cause of action in respect of any of the common law liabilities on which the claimants relied.[55] Though the facts alleged were sufficient to sustain claims under two statutory causes of action, which need not concern us here, Smith J dismissed the application for class certification on other grounds. The claimants' appeal has since been dismissed.[56]

(a) Negligence

Liability in negligence arises when (1) the defendant owes the claimant a duty of care, (2) the defendant breaches that duty, and (3) the claimant suffers proximate loss as a consequence. The defendant may be able to rely upon a general defence to tortious liability so as to reduce (in the case of contributory negligence) or extinguish his liability. 33

In English law, the existence of a duty of care requires that the claimant satisfy the threefold requirements of foreseeability, proximity and fairness, justice and reasonableness (or policy) set out in *Caparo Industries plc v Dickman*.[57] In established duty situations, however, there is no need to advert specifically to the threefold test, so express consideration of the test is in practice reserved for those cases in which the claimant alleges a novel category of duty.[58] 34

In *Hoffman v Monsanto*,[59] it was conceded by the claimants that the duty of care on which they relied – to prevent or minimise the extent of adventitious presence of the defendants' GM canola in their crops – fell into no established category and was therefore novel. As such, it had to be shown that their pleadings alleged reasonably foreseeable harm and relational proximity sufficient to establish a prima facie duty of care, and that there were no policy considerations that would bar or limit the imposition of such a duty.[60] Smith J expressed some doubt as to whether the pleadings were sufficient to support a claim for foreseeability, noting that the applicable organic standards (unlike those in Europe) made no mention of GMOs at the time that GM canola was first commercially released in Canada, but she was prepared to proceed on the assumption that the pleadings were adequate.[61] However, she found that the 35

[55] In addition to the torts considered in the text below, the claimants had also sought to rely on trespass to land, but Smith J concluded that they could not succeed because the defendant had not directly interfered with the claimants' land: [2005] 7 WWR 665 at [133].

[56] *Hoffman v Monsanto Canada Inc* [2007] 6 WWR 387.

[57] [1990] 2 AC 605. In *Customs and Excise Commissioners v Barclays Bank plc* [2006] UKHL 28, [2006] 3 WLR 1 the House of Lords observed that other 'tests' might also be employed in particular cases, but accepted that the *Caparo* principles provided 'a convenient general frame work' for analysis (at [93] per Lord Mance).

[58] Cf. *Customs and Excise Commissioners v Barclays Bank plc* [2006] 3 WLR 1 at [53] per Lord Rodger ('a court faced with a novel situation must apply the threefold test').

[59] Above fn. 54.

[60] The approach is very similar to that adopted in English law pursuant to the House of Lords' decision in *Caparo v Dickman*.

[61] [2005] 7 WWR 665 at [64] [66].

pleaded facts were insufficient to establish the relational proximity necessary for a prima facie duty to arise, because they included no allegation of physical harm to themselves or their property, or any other factor that might support an argument of sufficient proximity.[62] In addition, there were policy considerations that were sufficient to bar or limit the imposition of the alleged duty of care. First, the defendants' receipt of prior federal government approval for the unconfined release of their GM canola varieties meant that imposition of a duty of care would conflict with express governmental policy.[63] Secondly, the claim was principally a claim for pure economic loss of a category not previously recognised by the Canadian courts: in effect, the alleged damage was not physical harm to the claimants' crops but economic loss resulting from their alleged inability to meet the requirements of organic certifiers or foreign markets for organic canola. There was no allegation that GM canola was unhealthy or caused detrimental physical problems to humans or plants.[64] On the pleaded facts, the traditional policy arguments against the recovery of pure economic loss – e.g. the fear of an indeterminate and unlimited liability[65] – were compelling reasons for excluding a duty of care.[66]

36 The court's approach is not beyond criticism but it illustrates some of the potential difficulties that may obstruct GMO-related negligence claims in the common law. Perhaps the most controversial aspect of Smith J's analysis, underpinning her conclusions on both proximity and policy, is her treatment of the case as one of pure economic loss rather than physical damage.[67] Why should an unwanted GM presence in the claimant's crop not be treated as 'damage', and the claimant's losses as consequential rather than purely economic? It must be admitted, however, that not every physical change in the claimant's property warrants the conclusion that it has been damaged. In a case in 2007,[68] the House of Lords ruled that physical changes in the claimant's body did not, on the facts, satisfy the damage requirement of the tort of negligence. Damage did not have to be substantial, but it had to be more than minimal.[69] On the facts, the pleural plaques of which the claimants complained were insufficiently significant: they were symptom-less, had no adverse effect on any bodily function, and being internal had no effect on appearance.[70] Although this was a case of (alleged) personal injury, the same principles undoubtedly apply to property damage. The question for the court would be whether a GM presence in non-GM crops as small as 0.1% could be considered 'more than minimal'.

[62] [2005] 7 WWR 665 at [67] and [70].
[63] [2005] 7 WWR 665 at [71]. It is submitted that this is a matter more properly considered under 'breach of duty'.
[64] [2005] 7 WWR 665 at [72].
[65] [2005] 7 WWR 665 at [77].
[66] [2005] 7 WWR 665 at [80] [81].
[67] Cf. *Customs and Excise Commissioners v Barclays Bank plc* [2006] 3 WLR 1 at [31] per Lord Hoffmann ('In the case of personal or physical injury, reasonable foreseeability of harm is usu ally enough… to generate a duty of care.')
[68] *Rothwell v Chemical & Insulating Co Ltd* [2007] UKHL 39, [2008] 7 AC 281.
[69] [2008] 1 AC 281 at [8] per Lord Hoffman at [47] per Lord Hope.
[70] See, eg, [2008] 1 AC 281 at [68] per Lord Scott.

The stronger view, implicit in the court's approach in the pleural plaques case, is that regard should be had to the consequences that flow from the physical change, and that a loss of organic certification resulting from GM presence in the crop should be regarded as sufficiently significant to warrant the conclusion that it has been damaged.[71] Nevertheless, what constitutes damage in the tort of negligence remains to be fully explored by the courts.

37 To be contrasted with the case considered above, where the farmer's losses result from actual GM presence in the crop, is the case where the losses result from its feared presence (e.g. by consumers). In such a case, there is certainly no physical damage, and the farmer's loss is purely economic. In English law, there is generally no duty to take reasonable care to avoid causing purely economic loss to another,[72] and the only exceptions (e.g. voluntary assumption of responsibility) would not appear to be of application here. So a claim in such circumstances would be very unlikely to succeed.

38 If the claimant succeeds in establishing a duty of care, it must then be considered whether there was a breach of that duty on the facts. The defendant must be shown to have been at fault. This could well be an insuperable obstacle in cases where the GM farmer has fulfilled all his obligations under the proposed coexistence regime: doing what is required by statute cannot amount to negligence.[73] In such a case, it would appear to be necessary to identify negligence in the manner of his compliance with the obligations, assuming that they left room for discretion on the GM farmer's part, or some collateral negligence. Alternatively, it might be possible to prove fault by someone else, for example, the GM seed company. As noted above, however, the terms of the licence under which the company supplies the seed may preclude any finding of fault. An action may be possible, of course, where there is shown to have been a defect in the seed at the time of its supply, and this defect was responsible for damage to the non-GM crops, though it should be noted that it will be easier to sue under the Consumer Protection Act 1987, rather than for common law negligence, as liability under the statute is strict. But there may be circumstances in which the common law claim holds out more prospects of success, for example, where the risk in question was unknowable at the time of supply, raising the development risks defence under the statute, but the claimant complains of the seed companies' failure to warn of the danger, or recall the seeds, after it ought reasonably to have become aware of the risk.[74]

39 The third requirement of a successful claim in negligence – causation of proximate loss – is considered below.

[71] Contra, *M. Lee/R. Burrell* (supra fn. 48) 530.
[72] This general exclusionary rule was recently affirmed by the House of Lords in *Customs and Excise Commissioners v Barclays Bank plc* [2006] 3 WLR 1.
[73] Cf. *Geddis v Proprietors of Bann Reservoir* (1878) 3 App Cas 430 (statutory authorisation).
[74] See, eg, *E Hobbs (Farms) Ltd v Baxenden Chemical Co Ltd* [1992] 1 Lloyd's Rep 54.

(b) Public nuisance

40 Public nuisance has been defined as 'an act not warranted by law or an omission to discharge a legal duty, which act or omission obstructs or causes inconvenience or damage to the public in the exercise of rights common to all Her Majesty's subjects.'[75] Ordinarily only a criminal offence, a public nuisance may give rise to civil liability if it causes the claimant to suffer some 'special damage', by which is meant damage different in kind – and not merely greater in amount – than that suffered by persons generally. In practice, it is unlikely that a liability relating to GM crops would arise in public nuisance except in circumstances where there was a concurrent liability in negligence or private nuisance.

(c) Private nuisance

41 A private nuisance is the unreasonable interference with the claimant's use or enjoyment of land. As it is 'a tort to land', it is actionable only by a person with an interest in the land affected.[76] In determining the reasonableness of any interference, the courts may take into account a wide variety of circumstances, including the duration and timing of the interference, its severity, the locality in which it occurs,[77] the defendant's motive, and whether or not the claimant was being unduly sensitive.[78] Regulatory consents, even if they do not *per se* give rise to a defence of statutory authorisation, may serve to 'crystallise' what is a reasonable land-use in the area in question.[79] It is not necessary to show that the claimant suffered 'damage': interference with his amenity interests will suffice. But the interference must be substantial.[80] If the interference is found to have been unreasonable, it is no defence that the defendant took

[75] *J. Stephen*, A Digest of the Criminal Law (1877) 108 approved by Lord Bingham in *R v Rimmington* [2006] 1 AC 459 at [36].

[76] *Hunter v Canary Wharf Ltd* [1997] AC 655.

[77] *C. Rodgers* (supra fn. 48) 381 plausibly suggests that GM crop farming is more likely to give rise to liability in private nuisance if the area is one which has declared itself 'GM free' via col lective land use decisions made within the community.

[78] See further *Network Rail Infrastructure Ltd v Morris (t/a Soundstar Studio)* [2004] EWCA Civ 172, [2004] Env LR 41.

[79] *Gillingham Borough Council v Chatham and Medway Dock Co Ltd* [1993] QB 343. Cf. *Wheeler v Saunders* [1996] Ch 19. *C. Rodgers* (supra fn. 48) 395 argues that the licensed planting of GM crops does not change the character of the area as such, or what is reasonable land use in it, but effects merely a subtle change in the nature of local agricultural production.

[80] *Salvin v North Brancepeth Coal Co* [1873] LR 9 Ch App 705. In a well known dictum, James LJ stated (p. 709) that the damage must be 'visible' and that 'scientific evidence, such as the microscope of the naturalist, or the tests of the chemist,' would not suffice to establish it: 'The damage must be such as can be shewn by a plain witness to a plain common juryman.' Cf. Mell ish LJ at 713: the damage must be such that 'every fairly instructed eye can really and clearly see it.' AEBC (supra fn. 4) doubted whether adventitious GM presence would be visible in this way. However, a lack of visible damage does not preclude liability in private nuisance in other contexts (e.g. water pollution: see, e.g., *Cambridge Water Co Ltd* v *Eastern Counties Leather plc* [1994] 2 AC 264) and it is submitted that *Salvin* does not require visibility in a literal sense, only that the alleged damage manifests itself in some way that would be appreciable to an ordi nary, informed person. See further *C. Rodgers* (supra fn. 48) 382 7.

all reasonable steps to reduce its effects. Private nuisances normally involve an element of continuity or repetition, but even a single occurrence can give rise to liability in appropriate circumstances (though the liability here is often indistinguishable from that in negligence). The successful claimant is prima facie entitled to an injunction to prevent the continuation or repetition of the nuisance in the future, as well as damages for harm already suffered.

42 Private nuisance, though not public nuisance, was amongst the claimants' pleaded causes of action in *Hoffmann v Monsanto*.[81] The chief difficulty they faced was that the defendants, as manufacturers of GM seeds but not the actual users, were only indirectly responsible for any GM presence in the claimants' crops. For the judge, this was an insuperable obstacle. She found that there were no pleaded facts that could support a finding that the defendants were the substantial cause of the alleged nuisance. They were not in occupation or control of the land on which their seeds were sown, and their mere sale and marketing of GM canola did not establish their responsibility for causing a nuisance that occurred only after its use by independent third parties.[82] It may be noted, however, that Smith J declined to rule out the private nuisance claim on the basis that the claimants' alleged injury was insufficiently 'unreasonable' or 'substantial' to sustain a claim in private nuisance, or that their activities were hypersensitive, though she did not discount those arguments either, though she emphasised the difficulty the claimants might have in meeting them.[83] These issues would almost certainly be raised if a claim were to be made against a neighbouring GM farmer, rather than the seed company, though it has been plausibly suggested that organic farming – as a Government supported activity – is unlikely to be considered an abnormally sensitive use.[84]

(d) The Rule in Rylands v Fletcher

43 In the classic formulation of Blackburn J, 'the person who for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and, if he does not do so, is prima facie answerable for all the damage which is the natural consequence of its escape.'[85] He went on to say that the defendant could excuse himself by showing that the escape was owing to the claimant's default, *vis major*, or an act of God. The rule provides perhaps the best known example of strict liability in the English common law, but it is subject to a number of important preconditions which have been restrictively construed by the courts in the intervening years. First, the rule applies only to dangerous things, whose presence on the

[81] [2005] 7 WWR 665. See no. 32 above.
[82] [2005] 7 WWR 665 at [122].
[83] [2005] 7 WWR 665 at [107] [108].
[84] AEBC (supra fn. 4) §268. See further *C. Rodgers* (supra fn. 48) 392 4. The question of hyper sensitivity was raised by Buxton LJ in *R v Secretary of State for the Environment, Transport and the Regions, ex p Watson* [1999] Env LR 310, 323 but not answered.
[85] *Fletcher v Rylands* (1866) LR 1 Ex 265, 279 280 approved by the House of Lords in *Rylands v Fletcher* (1868) LR 3 HL 330.

defendant's land creates 'an exceptionally high risk of danger or mischief if there should be an escape, however unlikely an escape may have been thought to be.'[86] Secondly, the damage must be attributable to the thing's escape from the land, not merely from the defendant's control. The rule does not apply to damage suffered on rather than outside the land.[87] Thirdly, the defendant must have been engaging in a non-natural use of land. This means not only that the thing which escapes was not naturally on his land, but was brought onto it by the defendant, or accumulated there by virtue of his activities, but also that the defendant's use of land was 'extraordinary and unusual.'[88] According to the classic test, it must be a 'special use… not merely … the ordinary use of the land or such a use as is proper for the general benefit of the community.'[89] The exception relating to public benefit was doubted by the House of Lords in the *Cambridge Water* case,[90] but the expression of the test in terms of 'ordinary' rather than 'natural' use has since then received the Law Lords' approval.[91]

44 Although it was for a long time thought to represent an independent category of liability, the House of Lords ruled in the *Cambridge Water* case that liability under *Rylands v Fletcher* was a species of liability in private nuisance, albeit dealing with isolated escapes from land rather than continuous or repetitive interference. It therefore appears to be subject to the same limitations as follow from the recognition of private nuisance as a tort to land, namely, that it provides no remedy for personal injury as such, and that it is actionable only by a person with an interest in the land affected.

45 The rule was amongst those causes of action relied upon by the claimants in *Hoffman v Monsanto*. Because the action was against the seed companies, not GM farmers, the claimants were obliged to argue that the relevant 'escape' was the defendants' general commercial release of GM canola. Smith J had a comparatively easy task to conclude that this did not constitute an 'escape' under the rule in *Rylands v Fletcher*.[92] In the circumstances, it was not necessary for her to go on to consider whether GM canola could be considered a 'dangerous' substance, or whether the use of land for growing GM canola was 'non-natural', but these would undoubtedly pose a very significant hurdle for the claimant even in an action against the farmer from whose land the GM canola had undoubtedly escaped.[93]

[86] *Transco plc v Stockport MBC* [2004] 2 AC 1 at [10] per Lord Bingham.
[87] *Read v J Lyons & Co* [1947] AC 156.
[88] *Transco plc v Stockport MBC* [2004] 2 AC 1 at [11] per Lord Bingham.
[89] *Rickards v Lothian* [1913] AC 263, 280.
[90] *Cambridge Water Co Ltd* v *Eastern Counties Leather plc* [1994] 2 AC 264, 308 9 per Lord Goff.
[91] *Transco plc v Stockport MBC* [2004] 2 AC 1 at [11] per Lord Bingham.
[92] [2005] 7 WWR 665 at [96] [97].
[93] See further *M. Lee/R. Burrell* (supra fn. 48) 532 3 and *C. Rodgers* (supra fn. 48) 377 ('im probable' that growing GM crops would be seen as a non natural use). Rodgers also questions whether *Rylands v Fletcher* applies to escapes which are not isolated, but Lord Goff in *Cambridge Water Co Ltd* v *Eastern Counties Leather plc* [1994] 2 AC 264, 306 observed that the rule was not limited in that respect.

2. Causation

(a) Which criteria apply with respect to the establishment of the causal link between the alleged damage and the presence of the GM crop concerned?

46 The general law of tortious liability applies. The presence of the GM crop must be shown to have caused or at least to have made a material contribution to the damage,[94] or – conceivably – to have made a material contribution *to the risk* that the damage might occur.[95] The claimant must normally show that the damage would not have occurred *but for* the conduct alleged to be tortious, and that it was of a type that was reasonably foreseeable.[96]

(b) How is the burden of proof distributed?

47 At common law, the burden of proof always rests on the claimant.

(c) How are problems of multiple causes handled by the general regime?

48 In its Consultation Paper, DEFRA noted that there might in some cases be a problem establishing who was the proper defendant,[97] apparently having in mind a situation where there is more than one possible source of the GM presence. According to normal principles of tort law, where two sources of a harmful thing combine to cause the claimant injury, and the defendant is responsible for one of the sources, he can be held liable on the basis of his material contribution to the claimant's injury, without having to show that the injury would not have occurred but for his contribution.[98] Damages are then awarded on a proportionate basis, according to the extent of the defendant's contribution to the injury insofar as this can be assessed; if necessary, a surrogate criterion may be employed (e.g. the length of time the claimant was exposed to each source).[99]

49 Where the GM presence could potentially come from more than one source, and it is disputed whether or not it comes (wholly or partially) from the source for which the defendant is responsible, the normal approach suggests that the claimant is required to prove the defendant's contribution to the presence on the balance of probabilities.[100] However, by way of exception to the general approach, it is sufficient in some cases that the defendant materially increased

[94] *Bonnington Castings Ltd v Wardlaw* [1956] AC 613.
[95] *McGhee v National Coal Board* [1973] 1 WLR 1; *Fairchild v Glenhaven Funeral Services Ltd* [2003] 1 AC 32. See further II, 2(c) below.
[96] *Overseas Tankship (UK) Ltd v Morts Dock & Engineering Co Ltd, The Wagon Mound* [1961] AC 388. This rule applies even under the strict liability rule in *Rylands v Fletcher*: *Cambridge Water Co Ltd* v *Eastern Counties Leather plc* [1994] 2 AC 264.
[97] DEFRA (supra fn. 10) 137.
[98] *Bonnington Castings Ltd v Wardlaw* [1956] AC 613.
[99] *Holtby v Brigham & Cowan (Hull) Ltd* [2000] 3 All ER 421.
[100] Cf. *Wilsher v Essex Area Health Authority* [1988] AC 1074.

the risk of the claimant's injury, even if it cannot be shown on the balance of probabilities that he actually contributed to the injury.[101] The exception is of uncertain scope, and it cannot be lightly assumed that it would be applied to liability for GMOs. But the House of Lords has recently affirmed that the principle applies not just where all sources of the risk were tortious,[102] or – if not all tortious – were at least all within the defendant's control,[103] but also where there were a number of quite independent tortious and non-tortious exposures to the risk, and even if part of the exposure was the claimant's own fault.[104] Quite how far the courts are willing to take the exception is at present rather unclear, but there is certainly a possibility that it might be applied in a case where the GM presence might have been caused by any one of several GM farmers in the claimant's vicinity, but it cannot be established against any of them individually that they were more likely than not to have contributed.[105] It should be noted, however, that liability under the exception is attributed on a proportionate basis, relative to the extent of the defendant's contribution to the risk.[106]

3. Standard of liability

(a) In the case of fault based liability, what are the parameters for determining fault and how is the burden of proof distributed?

50 Fault is established by reference to the standards of the reasonable person, balancing the probability of harm resulting from the activity in question, and the likely gravity of that harm if it should result, against the cost to the defendant of taking precautions against the risk, and the activity's social utility. What is expected of the reasonable person may also be affected by what is common practice in the area of activity in question, while – as previously noted – statutory requirements or authorisations may serve to negate any finding of fault on the facts. But if it is reasonable to expect the statutory requirements to be fulfilled without causing the claimant damage, yet the defendant chooses to fulfil them in such a way that damage results, that prima facie constitutes fault.[107] Nevertheless, it has been argued that proving fault in the area with which we are concerned will be 'difficult' as 'it is in the nature of "reasonable" GM farming techniques that they will bring about cross-pollination.'[108]

[101] *McGhee v National Coal Board* [1973] 1 WLR 1; *Fairchild v Glenhaven Funeral Services Ltd* [2003] 1 AC 32.
[102] *Fairchild v Glenhaven Funeral Services Ltd* [2003] 1 AC 32.
[103] *McGhee v National Coal Board* [1973] 1 WLR 1.
[104] *Barker v Corus UK Ltd* [2006] UKHL 20, [2006] 2 WLR 1027.
[105] Cf. *Fairchild v Glenhaven Funeral Services Ltd* [2003] 1 AC 32.
[106] *Barker v Corus UK Ltd* [2006] UKHL 20, [2006] 2 WLR 1027.
[107] *Geddis v Proprietors of Bann Reservoir* (1878) 3 App Cas 430.
[108] *M. Lee/R. Burrell* (supra fn. 48) 530.

(b) To the extent a general strict liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

51 It is sometimes said that liability in nuisance is strict, in that it is no defence that the defendant took all reasonable care to reduce the level of interference, but the better view is that fault of some kind is entailed by a finding that the interference is unreasonable.[109] The rule in *Rylands v Fletcher* is therefore the only common law strict liability that might be relied upon here. Its requirements have been discussed above. As noted there, the range of available defences includes the claimant's wrongful act, *vis major* (i.e. the intervention of an independent third party that the defendant could not reasonably have been expected to prevent[110]), and act of God.[111]

52 As also noted above, the statutory product liability regime under Part 1 of the Consumer Protection Act 1987 may also be applicable in some cases, but this merely implements the EC Product Liability Directive so I have not considered it at length in this report.

(c) Does your jurisdiction provide for special rules applicable to cases of nuisance or similar neighbourhood problems?

53 As noted above, there are specific causes of action for both public and private nuisance, but there are no special rules of civil liability applying to such situations in the sense in which I think the question intends.

4. Damage and remedies

(a) How is damage defined and measured?

54 What constitutes actionable damage differs according to the tort in question. In negligence, the claimant must normally establish physical injury to his person or property; liability for pure economic loss is restricted to a very considerable extent by manipulation of the duty of care concept.[112] In nuisance – both public and private – there is no requirement that the claimant prove physical damage, and the recovery of pure economic loss raises no special problems.[113]

[109] See further *A. Mullis/K. Oliphant*, Torts (3rd ed. 2003) 284 5. The matter cannot, however, be regarded as free from doubt, and the contrary view is asserted by AEBC (supra fn. 4) §267.

[110] See further *Perry v Kendricks Transport Ltd* [1956] 1 WLR 85.

[111] See, e.g., *Nichols v Marsland* (1876) 2 Ex D 1.

[112] See no. 37 above. It is not necessary for the purposes of this report to advert to the special is sues thrown up by cases of mental injury.

[113] For examples of recovery of pure economic loss, see *Rose v Miles* (1815) 4 M&S 101 (public nuisance); *Andreae v Selfridge & Co Ltd* [1938] Ch 1 (private nuisance).

55 In private nuisance, the bare invasion of the claimant's land by things emanating from the defendant's is actionable, even if no damage results, though in such a case the claimant may be restricted to nominal damages. In such a case, the likely reason for bringing a claim would be obtaining an injunction, though it should be noted that damages for future losses may be awarded in lieu of an injunction if the claimant's loss is small, assessable in money terms, adequately compensated by a small money payment, and it would be oppressive to the defendant to grant the injunction.[114] It is possible to imagine such issues arising in a case where GM seeds are blown onto the claimant's land from the defendant's, but the claimant cannot yet demonstrate any consequential loss.

56 A few exceptional torts, including trespass to land, are actionable per se, meaning that liability arises for the mere interference with the claimant's protected interests (e.g. the mere invasion of the claimant's land), and there is no need to prove any consequential harm. However, the 'invasion' of the claimant's land by GMOs is unlikely to be regarded as a trespass unless the GMOs were deliberately released onto the land,[115] and the more likely causes of action are in nuisance or (if damage results) negligence.

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free also recognized as compensable, or is proof of actual admixture required?

57 I do not think a claim would be possible in negligence, because proof of actual damage is usually necessary, and the case does not fall into any of the exceptional categories where pure economic loss is recoverable. I am also inclined to doubt that liability would arise under the rule in *Rylands v Fletcher*, because there may well have been no (proven) escape from the defendant's land, and, even if there has been, it is not the escape that causes the loss but the reaction of the claimant's customers. Whether such loss is recoverable in public or private nuisance is a difficult question to answer on the current state of the authorities. I would have to say that the issue is untested and uncertain.

(c) Where does your legal system draw the line between compensable and non compensable losses?

58 I would give the same answer as to (b) above, adding that – in negligence – it is not enough to prove that the defendant has damaged property belonging to a third party; the ability to sue normally rests on damage to one's own property.[116]

[114] Supreme Court Act 1981, sec. 50; *Shelfer v City of London Electric Lighting Co* [1895] 1 Ch 287.
[115] See *Hoffman v Monsanto* [2005] 7 WWR 665 at [133].
[116] *Spartan Steel Ltd v Martin & Co (Contractors) Ltd* [1973] QB 27.

(d) What are the criteria for determining the amount of compensation in general?

The normal measure of damages in cases of property damage is the item's diminution in value. In the case of commodities, this is normally determined by reference to prices in the market in which the commodity is traded. If as a result of the tort the property is worth nothing, its previous value is in principle recoverable in its entirety. In exceptional cases, the defendant may be entitled to damages on a 'cost of cure' basis, but it is hard to see how that would be relevant in the present context as the admixture of GM and non-GM crops cannot simply be reversed. 59

Applying these principles to losses resulting from the deliberate release of GMOs, it should first be recalled that many cases of loss of crop value will be covered by DEFRA's proposed redress scheme. It seems that common law actions will in practice be confined to cases where the claimant's loss is not covered, or is inadequately compensated, by the scheme. As the scheme applies a 0.9% threshold for GM presence, it is the common law that will provide the only remedy for losses resulting from a lower GM presence whose effect is that a crop intended to be sold as 'organic' now has to be sold as 'non-organic' (though not as 'GM'). In principle, the damages will represent the difference between the crop's market value as organic and its market value as non-organic. If it is necessary to incur additional transport or storage costs, these would in principle be recoverable too. It is hard to imagine circumstances in which the crop would have *no* market as non-organic. In the case of a claimant who is non-GM and non-organic, but has to market his crop as 'GM', losses that fall outside the scope of the proposed redress scheme but may be recoverable at common law might include, for example, losses flowing from the cancellation of a supply contract by a purchaser who insists on contracting with only non-GM farmers. It would have to be shown, however, that such a loss was reasonably foreseeable. The law normally allows a lesser degree of foreseeability in actions for tort ('not far-fetched') than in those for breach of contract ('a serious possibility'),[117] though it has been suggested that the 'contract' approach should apply in cases of economic loss irrespective of the cause of action.[118] If this is the case, it would make it problematic to recover losses under an unusual contract of which the defendant has no actual or presumed knowledge.[119] 60

(e) Is there a financial limit to liability, or is there any rule to mitigate damages once liability is established?

There is no financial limit to liability, but it is a general principle that the claimant must take reasonable steps to mitigate his loss. 61

[117] *C Czarnikow Ltd v Koufos* [1969] AC 350.
[118] *H Parsons (Livestock) Ltd v Uttley, Ingham & Co Ltd* [1978] QB 791.
[119] Cf. *Hadley v Baxendale* (1854) 9 Ex Ch 341.

(f) Are operators under any general or specific duty to obtain liability insurance or to provide for other advance cover for potential liability?

62 There is no such duty.

(g) Which procedures apply to obtain redress in such cases?

63 The ordinary rules of civil procedure apply.

(h) Are there any general compensation schemes that may be applicable in such cases, and how do they operate?

64 There are no general compensation schemes that may be applicable in such cases. In theory, it would be open to non-GM farmers to insure themselves against the risk of losses attributable to GMOs, but it has been reported that the principal insurer in the field, NFU Mutual, has refused to insure farmers against economic or environmental harm from GMOs.[120]

III. Sampling and testing costs

1. Are there any specific rules in your jurisdiction which cover costs associated with sampling and testing for GMO presence in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

65 There are no special rules about this in English law, but it may be noted that the recoverability of costs flowing from testing the affected crop for GM presence may be allowed under DEFRA's proposed redress scheme, though DEFRA has not yet formed an opinion on whether such losses should be covered.[121]

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply?

66 General tort law applies. The starting point is that precautionary expenditure incurred in advance of any physical damage occurring is pure economic loss and not normally recoverable. So it seems there could be no claim for the cost of sampling and testing non-GM crops for GM presence if there is in fact no such presence. If the testing does reveal a GM presence, however, there would seem to be no principled objection to the recovery of the costs.

[120] Friends of the Earth, Top Insurer Says No to GM Pollution Cover, 17 Feb 2000; FARM press release, No one will insure GM crops, 7 Oct 2003.
[121] DEFRA (supra fn. 10) §146.

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

As noted above, such costs would appear to be recoverable at common law only if the tests prove actual GMO presence. This is also the case under the DEFRA proposal as eligibility under the redress scheme will be limited to farmers who can show a GM presence in their crop above the 0.9% threshold. 67

IV. Cross-border issues

1. Special jurisdictional or conflict of laws rules

In an island nation, cross-border admixture of GM and non-GM crops is unlikely, and even if it were to occur there would seem to be very significant obstacles in the way of a claim (e.g. proving a particular defendant caused the GM presence). So far as I know, there are no special rules in force or planned of the type described. 68

2. General rules of jurisdiction and choice of law

In the United Kingdom, most jurisdictional matters are regulated under the Brussels regime. Where the defendant is domiciled in a country where this does not apply, jurisdiction is determined by common law and based on the proper service of a claim form, either on a defendant present in the jurisdiction, or, where tortious damage is sustained in the jurisdiction, or results from an act committed within the jurisdiction, on a defendant located abroad.[122] Under the Private International Law (Miscellaneous Provisions) Act 1995, the general rule is that the applicable law is the law of the country in which the events constituting the tort in question occur.[123] Where elements of those events occur in different countries, the applicable law under the general rule is, in a property damage claim, the law of the country where the property was when it was damaged,[124] and, in a claim for pure economic loss, the law of the country in which the most significant element or elements of those events occurred.[125] The general rule may be displaced if the significance of the factors which connect the tort with some other country make it substantially more appropriate to apply that country's law.[126] 69

As noted above, it seems unlikely that problems arising from cross-border admixture of GM and non-GM crops will arise in the UK, though it is conceivable that private international law issues might arise in exceptional cases of GMO liability (e.g. in an action against a GM seed company that is not present in the UK). 70

[122] Civil Procedure Rules, rule 6.20(8). The leave of the court is required if the claimant wishes to serve the claim form abroad.
[123] Sec. 11(1). But note the new regime to be introduced as of 11 January 2009 under Regulation No (EC) 864/2007.
[124] Sec. 11(2)(b).
[125] Sec. 11(2)(c).
[126] Sec. 12.

Special Reports

Liability in Cases of Damage Resulting from GMOs: an Economic Perspective

Michael Faure/Andri Wibisana

I. Introduction

The problems sketched in the introduction to this research project, being what the role of liability rules could be in case there is a presence of genetically modified organisms (GMOs) in non-genetically modified crops is certainly a question that merits to be analysed from an economic perspective as well. Economic analysis of law or, as it sometimes shortly referred to "law and economics" has paid a lot of attention generally to the question of how legal rules can be designed in such a way as to increase social welfare.[1] In this respect, some attention has been paid to the use of GMOs generally. That literature more particularly focuses on the uncertainties inherent in the use of GMOs. Increasingly, economic analysis also deals with the question of how the law should react to risk and uncertainty. Hence, economists also provide an economic perspective of the precautionary principle. In that respect, economists have also paid attention to the question whether risky activities that have benefits to society but may also have uncertain negative consequences should still be allowed to take place or not. Traditional cost-benefit analysis has been supplemented with insights from behavioural law and economics to tackle these complicated issues. In that respect, law and economics has paid some attention to the acceptability of GMOs, but that is obviously not the focus of this study. 1

In this study, a more narrow question is addressed, being whether there could or should be any liability if genetically modified crops are used in the EU whereby these GMOs may affect other products that have not been genetically modified[2]. Even though this liability for (in short) damage caused by GMOs 2

[1] The standard handbook in this respect is still from *R. Posner*, Economic Analysis of Law (6th ed. 2003). But see equally *R. Cooter/T. Ulen*, Law and Economics (4th ed. 2004) and *S. Shavell*, Foundations of Economic Analysis of Law (2004).

[2] Of course, it should be noted that the issue of co mingling between non GM and GM crops is not the only concern that might result from a deliberate release of GMOs to the environment. For example, genes of GM crops designed to be tolerant for the application of certain herbicides

has to our understanding not been the subject yet of much economics literature there is obviously a vast law and economics literature with respect to the role and shape of liability rules. That general economic literature provides some insights that can also in quite a useful way be applied to the liability for damage caused by GMOs. Indeed, a parallel can be made with other, although slightly related liability situations on which economic analysis exist. For instance, a wide economic literature exists on environmental liability[3] as well as for the related area of product liability.[4] Even though liability for damage caused by GMOs may of course still pose slightly different problems, some of this literature can be applied to the issues raised in the questionnaire.

3 However, since this report is not, like the other reports for this study, a traditional country report in which existing legal rules from statutes or case law are discussed, the questionnaire cannot be followed in a literal sense. For instance, it does not seem useful to make, from an economic perspective, a distinction between special liability or compensation regimes on the one hand and general liability regimes on the other hand. However, it is very well possible to address the various issues mentioned in the questionnaire in this report as well, thereby focusing on the general question how, from an economic perspective, legal rules should be constructed to address a liability in case of mixture of GM crops with non-GM crops.

4 Generally, in the economic analysis of law, a distinction is made between prevention and compensation. As will be shown below, from an economic perspective, liability rules primarily should have a preventive effect and thus pro-

(herbicide tolerant crops) have a potential to flow to their weedy relatives or other plants resulting in the development of herbicide resistant hybrids. The development of herbicide tolerant weeds could increase the costs of weeds control and pressure to the environment as farmers are forced to resort to chemicals that are possibly more toxic. Concerns have also been pointed to other types of GM crops, namely insect resistant crops that are designed to produce a certain type of pesticides. Some crops have been genetically modified with genes from *Bacillus thuringiensis*, referred to as Bt crops, in such a way that insects eating these crops will be killed. Such self producing pesticides plants might create several environmental problems. It has been argued that Bt crops could make the development of pest resistance faster. The development of Bt resistant pests will not only reduce the economic value of Bt crops, but also create a significant loss for organic farmers as Bt is one of most effective pesticides allowed for organic farming. Finally, the release of GMOs into the environment might also create impacts on non target and beneficial species, such as monarch butterfly. See: *D.E. Ervin et al*., Towards an Ecological Systems Approach in Public Research for Environmental Regulation of Transgenic Crops, [2003] *Agriculture, Ecosystems and Environment* 99, 1–14; *S.S. Batie*, The Environmental Impacts of Genetically Modified Plants: Challenges to Decision Making, [2003] *American Journal of Agricultural Economics* 85, 1107–111. Readers interested in more scientific evidence about various environmental impacts of GMOs could see, for example: *L.L. Wolfenbarger/P.R. Phifer*, The Ecological Risks and Benefits of Genetically Engineered Plants, [December 2000] *Science* 290, 2088–2092; and *D.A. Andow/C. Zwahlen*, Assessing Environmental Risks of Transgenic Plants, [2006] *Ecology Letters* 9, 196–214.

[3] See for a summary of this literature *M. Faure* (ed.), Deterrence, Insurability, and Compensation in Environmental Liability. Future Developments in the European Union (2003).

[4] See *M. Faure*, Product Liability and Product Safety in Europe: Harmonization or Differentiation? [2000] *Kyklos*, 467–508.

vide incentives to those dealing with GMOs to prevent the particular damage coming from this mixture. This is in the economic analysis distinguished from *ex post* compensation for which a variety of remedies can be developed as well. Both issues will be addressed in this report, the remainder of which will be structured as follows: after this introduction (I) the importance of distinguishing liability in tort and liability in contract from an economic perspective will be briefly introduced (II). Then, more attention will be paid to the detailed shape of a potential liability regime, given its goal of preventing damage resulting from mixture (III). The questionnaire already makes clear that important questions can arise concerning causation more particularly when there is e.g. uncertainty between the damage and the operator responsible for it, more particularly since there may be different sources of mixture. Hence, the causation issue has to be addressed from an economic perspective (IV). Next, the question arises as to the available remedies and more particularly the damages that can be awarded (V). This also raises a more general question of compensation for the loss, also through mechanisms other than liability (VI). Finally, attention will briefly be paid to a few cross-border issues from an economic perspective (VII).

II. Liability versus contract

First of all, it should be mentioned that many of the examples of potential damage situations have, both from a legal and from an economic perspective, a different legal structure. Some cases can clearly be constructed as tort cases whereby damage is caused to third parties. However, in some cases, the mixture can only be known at later stages of the food or feed protection chain and hence there may be contractual liability as well. Indeed, specific requirements concerning GMO presence could also be laid down in contracts with retailers or other operators further down the food or feed production chain. From an economic perspective, there is a clear distinction between those two situations. The dividing line is clearly whether there is a third party involved or not. If e.g. a producer of GMOs wrongfully causes mixture of his products with non-genetically modified crops, this would generally be constructed as a tort case as long as the victim does not stand in a contractual relationship with the injurer. However, the situation may be different when the injurer and the potential victim stand in a contractual relationship to each other and are thus bound to each other via the price mechanism. In practice, however, comingling between GM and non-GM crops usually occurs as a result of cross-pollination between the two crops, in which we can hardly find that potential victims, namely the farmers whose crops have been pollinated by pollen from GM crops, have a contractual relationship with the farmers planting GM crops or the producer of the GM crops. 5

From an economic perspective, the question arises whether and if so how legal rules should intervene to prevent the damage from occurring. As was already mentioned in the introduction, economists would basically stress that legal rules, thus also liability rules, have an incentive function. Thus, the main function of legal rules in this particular context would be to provide incentives 6

to producers or manipulators of GMOs to prevent damage more particularly resulting from mixture with non-genetically modified crops. It should be clear form the outset that for the purpose of this study, we simply assume that it is efficient to prevent this mixture from occurring and that hence this mixture can from a social welfare perspective be considered as a loss.[5] Thus the law and economics problem we face in this study is what particular rules should or can be designed to provide incentives to operators for preventing damage resulting from this mixture and on the other hand how appropriate compensation could be guaranteed if *ex post* damage nevertheless occurred.

1. Coase

(a) Basic theory

7 As long as a victim and injurer stand in a contractual relationship to each other, most law and economics scholars would probably immediately refer to the well-known Theorem presented by Nobel Prize winner Ronald Coase in his well-known paper "The Problem of Social Cost".[6] Coase showed that if transaction costs are zero, an optimal allocation of resources will follow no matter what the legal rule holds. This is the short summary of what later became known as the Coase Theorem. It basically means that if parties are in a situation where they can contract (hence the reference to the low transaction costs) the optimal solution for society (in case of a potential damage, the optimal loss reduction) will always be followed by parties, even if the legal rule would say something else.

8 Of course, some have doubted the importance of the Coase Theorem for real life situations since transaction costs are inevitably a reality. On the other hand, other scholars showed that in fact the conditions of the Coase Theorem are also met in every situation where the injurer and the victim are bound to each other via the price mechanism. Thus some have applied the Coasean solution also to the area of product liability. Therefore, Oi argued that a well informed consumer will only buy the product that has the lowest full price.[7] The full price

[5] Indeed, some may doubt whether the mixture between GMOs and non GM crops does constitute damage at all. It has been argued, for example, that the only damage for organic farmers is their loss of organic certification, due to the presence of GMOs in their products. However, Kershen challenges this possibility of losing organic certification because the mere presence of transgenic crops does not necessarily violate the standards of organic certification. The author argues that according to official standards for organic crops in the USA, organic crops may contain trans genic crops without losing organic certification. In this regard, the co mingling between GM and non GM crops does not necessarily create economic damage for organic farmers. See: *D.L. Kershen*, Legal Liability Issues in Agricultural Biotechnology, [2004] *Crop Science* 44, 457. For the purpose of this study, however, we assume that the admixture will create damage for the victim, i.e. the farmers that plant non GM crops. More detailed information about the possible damage of these farmers will be discussed in section V.

[6] *R.H. Coase*, The Problem of Social Cost, [1960] *Journal of Law and Economics* (JLE) 1 44.

[7] *W. Oi,* The Economics of Product Safety, [1973] *Bell Journal of Economics* (Bell J. Econ.) 4, 3 28.

in this perspective includes both the production price and the expected damage (due to the potential defect of the product). If there would hence be a liability situation (Caveat Vendit), the market price would already reflect the expected damage since the expected damage would be incorporated by the seller in the market price. However, Oi showed that also in case of no liability of the manufacturer (Caveat Emptor) the buyer would only buy the product at the lowest full price. This means that he would take the expected damage into account and add this to the market price. Of course, Oi has been criticized for the obvious reason that he assumes full information on the side of the consumer, which may not always be the case.[8]

Nevertheless, this Coasean solution remains important for GMO liability since there is a second aspect to it: another implication of the Coase Theorem is that if the law would e.g. decide to impose liability on an operator or manufacturer, the cost of such a liability could easily be passed on via the price mechanism. Through this passing on of additional liability costs Oi showed that in this particular Coasean setting, the price mechanism means that an intervention of the legal system cannot even have distributional effects (e.g. shifting costs to producers instead of to consumers). As long as the manufacturer is indeed able to pass on increased liability costs via the price mechanism, it will ultimately be the consumer who will pay for his own increased protection. 9

(b) Coase and GMO liability

These basic economic insights, resulting from the Coase Theorem, of course have their importance for GMO liability as well. For instance, as far as a potential liability is concerned in a contractual relationship (for instance in contract with retailers or operators further down the food or feed production chain) economists would (stated simply) argue that there is not much reason to worry since the parties can in principle freely negotiate about the division of risks. The division of risks would thus also be reflected in the price. If for instance a producer would exclude liability towards buyers further down the food or feed production chain, this should not necessarily be a problem since it will be reflected in a lower market price. Hence, economists would argue that as long as these Coasean bargaining conditions are fulfilled, there should not necessarily be an intervention of the legal system to change the (probably efficient) outcome of the bargaining between the contracting parties. The goal of law should then simply be, as the economics of contract law teaches,[9] to back up the contractual solutions agreed to by the parties.[10] 10

[8] See *V.P. Goldberg*, The Economics of Product Safety and Imperfect Information, [1974] Bell J. Econ. 5, 683 688.

[9] For an overview of the economics of contract law see *S. Shavell*, Foundations of Economic Analysis of Law, 291 385 and *A.T. Kronman*, Mistake, Disclosure, Information, and the Law of Contracts, [1978] *Journal of Legal Studies* (JLS) 7, 1 34.

[10] Of course, in the economics of contract law, there is a wide literature dealing with interesting problems such as e.g. whether there should still be a right to specific performance even if that may meanwhile have become inefficient or whether parties can still claim the execution of the

11 Since the study basically supposes that the liability question would arise between professionals engaged in the agricultural business, the traditional assumption of the Coase Theorem, being that well informed parties negotiate contracts that will increase their utility, will in most cases probably be met. This confirms that there may not be a necessity for a specific intervention in this particular case. The need for such an intervention may only arise if it appeared that one of the particular parties was not informed of the particular risks. In that case, one may not assume that the price will also reflect the agreement between the parties concerning the risk. The latter may more particularly be the case when the victim is not a professional but a consumer. In as far as the consumer suffered damage from the mixture of GMOs with non-GMO crops and if we assume that the consumers were not informed of this risk and would file a law suit, not against his seller but against the operator who was responsible for this mixture, this particular case would then again be dealt with like the traditional tort case, which we will discuss now.

2. Tort liability

(a) Goal of tort liability: General

12 If we now take the second case, the one in which there is no such contractual relationship between the injurer and the victim and where the victim is thus a third party who suffers damage as a result of the mixture of GMO with non-GMO crops, we find ourselves in the traditional tort case. The goal of tort liability has been well described in the economic literature. The economic analysis of law in general and of accident law more specifically starts from the belief that a legal rule and more particularly a finding of liability will give incentives to potential parties in an accident setting for careful behaviour.[11] Thus, economists tend to stress the deterrent function of tort law. Lawyers on the other hand mention this deterrent function sometimes as well, but tend to attach more value to the compensation goal of accident law. This "victim protection" argument is discussed in the law and economics literature as well.[12] In that respect it is, however, often stressed that the best form of victim protection is to avoid victimisation in the first place. Of course, no one will argue that prevention of accidents is not a way of victim protection as well. This difference

contract even if the factual conditions have changed. It would lead us too far to discuss these issues in any detail here. See *S. Shavell*, Contracts, in: *P. Newman* (ed.), The New Palgrave Dictionary of Economics and the Law (1998) 436 445.

[11] For excellent overviews of the role of liability and insurability as "engineering instruments" see *A. Endres/B. Staiger*, Ökonomische Aspekte des Umwelthaftungsrechts, in: *M. Ahrens/J. Simon* (eds.), Umwelthaftung, Risikosteuerung und Versicherung (1996) 79 93; *G. Wagner*, Haftung und Versicherung als Instrumente der Techniksteuerung, [1999] *Versicherungsrecht* (VR) 1441 1480; *A. Monti*, Environmental Risk: A Comparative Law and Economics Ap proach to Liability and Insurance, [2001] *European Review of Private Law* (ERPL) 51 79 and *M. Gimpel-Hinteregger*, Grundfragen der Umwelthaftung (1994) 19 58.

[12] Schwartz showed that rules of tort law may serve both the aims of deterrence and corrective justice: *G. Schwartz*, Mixed Theories of Tort Law: Affirming both Deterrence and Corrective Justice, [1997] *Texas Law Review* (Tex. L. Rev.) 75, 1801 1834.

in accent between both approaches is also characterised as an *ex ante* versus an *ex post* vision. Whereas lawyers tend to be more interested in the accident problem *ex post*, where there is a victim that needs to be compensated, economists look at the accident problem in an *ex ante* perspective by asking the question how an *ex post* finding of liability will influence *ex ante* the incentives of potential parties in an accident setting for care-taking.

13 Of course, the differences in approaches between lawyers and economists are not really that black and white. There are lawyers who stress the deterrent function of tort law as well and some economists pay attention to compensation issues by stressing that accident law should also aim at an equitable loss spreading.[13] Moreover, also lawyers argue that tort law should lead to duties of care, which aim at prevention. One advantage of the economic approach is that the deterrent function and compensation goal are carefully distinguished so that the influence of various legal mechanisms that one would choose can be evaluated both with respect to the prevention and with respect to the compensation issue. The first scholar to analyse these problems from a law and economics perspective was probably Guido Calabresi from Yale Law School.[14] In his well-known book *The Costs of Accidents* Calabresi makes a careful distinction between primary, secondary and tertiary accident costs.[15] Primary accident costs are the costs of accident avoidance and the damage that finally occurs; secondary costs refer to the equitable loss spreading and tertiary costs are the costs of administering the legal system. Tort law should give incentives for a reduction of total social costs of accidents. Thus the central goal of tort law was given: it should provide incentives for a minimisation of accident costs. This notion of Calabresi has been taken up later by economists who have formalized this issue.[16]

14 Let us address the first goal of tort law, i.e. the minimisation of primary accident costs: the costs of accident avoidance and the expected damage. Indeed, from a social point of view accidents do not only cause costs from the moment an accident occurs and harm is suffered; potential parties in an accident setting, both injurers and victims make investments in care to avoid the occurrence of an accident. Sometimes costs of care-taking are very clear and visible. We can refer for instance to the investments made by firms to reduce environmental pollution by investing in water-cleaning equipment or the investment to install safety controls to avoid product defects. But also the mere fact that in a traffic

[13] See *C.G. Veljanovski*, The Economic Theory of Tort Liability Toward a Corrective Justice Approach, in: *P. Burrows/C.G. Veljanovski* (eds.), The Economic Approach to Law (1981) 125 150.

[14] See his seminal article Some Thoughts on Risk Distribution and the Law of Torts, [1961] *Yale Law Journal* (Yale L.J.) 499 553.

[15] *G. Calabresi*, The Costs of Accidents. A Legal and Economic Analysis (1970).

[16] Here we refer more particularly to: *J.P. Brown*, Toward an Economic Theory of Liability, [1973] JLS 323 349; *P. Diamond*, Single Activity Accidents, [1974] JLS, 107 164; *W. Landes/R. Posner*, The Positive Economic Theory of Tort Law, [1981] *Georgia Law Review* (Ga. L. Rev.) 851 924; *S. Shavell*, Strict Liability versus Negligence, [1980] JLS, 1 25.

accident case both injurers and victims are limited in their freedom of movement for instance because they have to drive or work carefully is considered as a cost by economists. A difference is further made between so-called unilateral accidents in which only the care taken by one of the parties (the injurer) can influence the accident risk on the one hand and bilateral accidents in which the behaviour of both parties can influence the accident risk on the other hand.[17] In a bilateral accident situation the goal of accident law should therefore be to give incentives to minimise the total costs of care-taking by the potential injurer and the potential victim and the expected damage that will occur in case of an accident.

(b) Goal of GMO liability

15 Having now sketched the basic features and functions of the liability system in the context of GMO damage, let us now address a few more detailed questions in the questionnaire concerning the way in which a liability regime for GMO damage could be constructed from an economic perspective. At least after this exposé, it is clear what the goal of such a liability regime should be: it should primarily aim at the prevention of damage by providing incentives to the operator of GMOs to take optimal care in order to prevent mixture with non-genetically modified crops. Compensation is, as we mentioned, from an economic perspective not primarily the goal of liability rules but can be dealt with through other instruments which we will discuss below.

III. Liability regime

16 Assuming that the damage is suffered by a victim who does not stand in a contractual relationship with the operator who handles the GMOs we are thus in a third party liability situation. The question then arises through which liability rule (mainly strict liability or fault) from an economic perspective incentives should be provided for optimal prevention (1). The question also arises whether particular defences should from the same economic perspective be allowed to the operator (2) and what the influence may be of the other main instrument aiming at prevention of damage, being regulation (3).

1. Strict liability versus negligence

(a) Economic criteria for strict liability

17 Economists use classic cost/benefit analysis to determine what the level of care is that will lead to such minimisation of the social costs of accidents. Not surprisingly, this can be found where the marginal costs of care-taking equal the marginal benefits in accident reduction. Indeed, since care-taking has its price as well a legal rule should not give incentives to avoid every possible accident that could occur, but only accidents that could be avoided by investments in

[17] This distinction has been made by *S. Shavell*, [1980] JLS, 7.

care, of which the marginal costs are lower than or equal to the marginal benefits in accident reduction. It might well be that extremely high care could well additionally contribute to a reduction of the accident risk but the marginal costs of care-taking in that case might well be much higher than the additional benefit in accident reduction. Investments in care would in that case be inefficient and scarce resources would be spoiled.[18] These levels of care, where marginal costs of care-taking equal marginal benefits in accident reduction, are referred to in the literature as optimal or efficient care levels.[19] We will now first address optimal liability rules in a unilateral case.

18 Looking at a unilateral accident situation, one can state that two legal rules would give the injurer incentives for taking optimal care. If there were no liability at all, clearly the injurer would have no incentive for care-taking; therefore in a no-liability situation the externality will not be internalised and an inefficient outcome will follow. If a negligence rule is adopted, the injurer will take optimal care, provided the due care required in the legal system is equal to the optimal care as resulting from a marginal cost/marginal benefits weighing.[20] This can be easily understood. If the judicial system sets the due care standard correctly, the injurer can avoid liability by taking due care. Thus he will have to take care to avoid the accident, but if he does so he can avoid paying the expected damages. Of course, the injurer could take more care than the legal system requires him to do under a negligence rule, but he will have no incentive to do so since he can already escape liability by following the due care standard. The injurer could also spend less on care than the legal system requires him to. In that case he will have lower costs of care-taking, but he will have to pay damages in case an accident occurs. Since the optimal care standard was defined as exactly that level of care where the marginal costs of care equal the marginal benefits in accident reduction, taking less than the due care standard will not be interesting for the individual injurer since it will increase his total expected costs. Thus a negligence rule will lead to an efficient outcome as long as the legal system defines the due care as equal to the optimal care of the model.

19 Also a strict liability rule will lead to the optimum in a case where only one party can influence the accident risk. The reason is quite easy. A strict liability rule basically states that the injurer has to compensate in any case no matter what care he took. It is sometimes argued that this will lead the injurer to take excessive precautions or to take no care at all since he is liable anyway. Neither of these statements seems true. By making the injurer strictly liable, the social decision is in fact shifted to the injurer. In a unilateral accident case it simply

[18] This finding only holds in a risk neutral setting. In case of risk aversion higher investments in care might well be efficient since a reduction of accident risk will in that case also remove the disutility of risk from a risk averse person.

[19] See *W. Landes/R. Posner*, [1981] Ga. L. Rev. 870 and *A.M. Polinsky*, Introduction to Law and Economics (1983).

[20] *S. Shavell*, [1980] JLS, 8 and *G. Calabresi*, Optimal Deterrence and Accidents, [1975] Yale L.J. 84, 658.

means that he has to bear all the social costs of accidents, i.e. his own costs of care-taking and the expected damage.[21] Therefore, he will take exactly the same decision, i.e. to minimise his total expected accident costs. This can be reached at the optimal care level. Therefore, the injurer will take optimal care since this is the way to minimise his total expected costs. Spending more on care would increase his costs of care-taking inefficiently and spending less on care would increase the expected damage inefficiently.

(b) Strict liability for GMO damage?

20 How to, in sum, apply the economic arguments in favour of strict liability to the case of damage caused by GMOs?

21 The first question to be answered would be whether handling of GMOs should be considered a unilateral accident, being an accident where only the injurer can influence the accident risk. If that were the case, we just mentioned that the economic model predicts that the advantage of the strict liability rule is that it will give the injurer optimal incentives for care.[22] If in this particular case the victim cannot influence the accident risk, strict liability would be the first best solution to give the operator of the GMO optimal incentives to reduce the risk of GMO mixture with non-genetically modified crops.

22 The question, however, arises whether GMO mixture is always a truly unilateral case. Depending upon the factual circumstances (which can of course significantly vary) some may argue that one could imagine circumstances where also potential victims (in the sense of persons handling crops which are non-genetically modified) could take measures to prevent their crops from being affected by GMOs. If that were the case, one could argue that a GMO damage becomes a bilateral risk in which also the potential victim could take efficient measures to prevent the risk. However, one could still argue that the influence of the operator of the GMO is probably still far more important than the influence of the victim. If that is the case, the outcome does not change and the strict liability rule remains warranted to give the operator of the GMO optimal incentives to take preventive measures. This clearly assumes that the operator who handles the GMO is in the best position to prevent the risk. However, as will be mentioned below, in this bilateral case, it remains important that the defence should be added to the strict liability rule to give victims incentives for prevention as well. However, if it appeared from the factual situation that it is as important to provide victims with incentives to prevent the risk as it would be to give similar incentives to the operator who handles the GMO, a negligence rule would be optimal.

[21] *A.M. Polinsky*, Introduction to Law and Economics (1983) 39; *S. Shavell*, Economic Analysis of Accident Law (1987) 11.

[22] Also, it would provide optimal incentives to take an efficient activity level. See on the impor tance of the activity level also *S. Shavell*, [1980] JLS, 1 25.

Hence, GMO damage does not seem to be comparable with a classic environmental case. In the latter case, it is often argued that these are typical unilateral cases, where most of the influence of the accident risk comes from the potential polluter. Hence, most argue in favour of a clear strict liability rule since the victim can usually do less than the potential polluter to avoid the risk. However, since potential victims in the GMO case may be professionals as well, the same line of reasoning does not apply. If in fact it appears that the influence of both the potential victim and the operator who handles the GMOs is equally important, a negligence rule might in fact be optimal.[23] 23

From the explanation above, it appears that whether GMO liability cases are of a unilateral or a bilateral nature depends upon the factual situation. One could certainly argue cross-pollination from GM crops to non-GM crops constitutes a unilateral case. This is because if organic or conventional farmers should also prevent the cross-pollination, they should change their usual practices and, hence, incur high costs[24]. Under this situation, if transaction costs between organic farmers and farmers planting GM crops are low, they may bargain as to determine who is in a better position (i.e. more cheaply) to prevent the pollination. However, if transaction costs are high, a liability rule more suitable for the unilateral case should apply. In this regard, strict liability may be better than a negligence rule[25]. 24

2. Defences

Of course, economic analysis of liability law has paid a lot of attention to some of the classic defences available in tort law and has also provided an economic justification. Although many defences could theoretically be thought of within the context of this report, we will only mention the most important ones for the issue of GMO damage.[26] 25

[23] The economic reason is that only negligence also provides incentives to the victim to adopt an optimal activity level.

[24] One commentator notes that if organic or conventional farmers are forced to prevent gene con tamination, they may have to abandon their seed saving practices and, given resistance of the hybrids, use more toxic herbicides. See: *H. Preston*, Drift of Patented Genetically Engineered Crops: Rethinking Liability Theories, [2003] Tex. L. Rev. 81, 1159.

[25] Another reason for applying strict liability is the nonreciprocal nature of damage possibly suf fered by the organic or conventional farmers. In this case, a farmer who plants GM crops gains benefits from his crops, while at the same time exposing his neighbour to a risk that he is not subjected to, e.g. the risk of losing organic certification. See: *A.B. Endres*, "GMO": Geneti cally Modified Organism or Gigantic Monetary Obligation? The Liability Schemes for GMO Damage in the United States and the European Union, [2000] *Loyola L.A. International and Comparativ Law Review* 22, 491. A rationale behind this argument is probably related to the issue of the distribution of risk and benefit, in which those who gain benefits, while at the same time subjecting others to risks, should pay the damages if those risks materialize.

[26] The interested reader can see for further information on possible defences for instance in the related area of environmental liability *M. Faure/D. Grimeaud*, Financial Assurance Issues of Environmental Liability, in: *M. Faure* (ed.), Deterrence, Insurability and Compensation in En vironmental Liability. Future Developments in the European Union (2003) 52 67.

(a) Force majeure

26 A traditional defence accepted in almost every liability regime is force majeure (although it may have different interpretations). From an economic point of view one can easily argue that in case of force majeure there should be no liability. Force majeure is generally a condition, not only for fault or strict liability, but for every liability in tort. It is related to the blameworthiness requirement, which requires that the injurer should have capacity for tortious liability. A tort will indeed, accordingly to most legal systems, only make an injurer liable if the wrongful act is imputable to him.

27 This condition of blameworthiness relates to the free will and the capacity of discretion of the tortfeasor.[27] This blameworthiness requirement also has a clear economic rationale. When the injurer did not act out of free will, liability cannot influence his incentives to take care and has, therefore, no economic meaning. A finding of liability which does not influence the incentives of the tortfeasor will only create administrative costs (caused by the transfer of the loss) without any compensating benefits in providing additional incentives to take care.

28 We refer here to the blameworthiness requirement simply as meaning that the injurer contributed in some way to the loss. The requirement of "blame" traditionally fits into a fault or negligence concept. In fact, in the context of strict liability mere causation suffices. But if the injurer did not "cause" the accident, he should not be held (strictly) liable. Force majeure therefore should remain a defence, even under strict liability, since a finding of liability makes no sense if the injurer could not have influenced the risk.

(b) Development risk?

29 An important question, also with respect to GMO damage, is of course whether the operator handling GMOs should be allowed to call on the development risk defence. This would mean that the operator would not be liable if the damage could, according to the state of the technology at the time when the act took place, not be foreseen.[28] One would thus assume that an operator is handling GMOs and that certain negative consequences of GMOs for third parties could at that particular moment not be foreseen by the operator. How should, from an economic perspective, the law deal with the fact that there may be situations where either the risks change, or technology changes and as a result of that also the standard of care increases?

[27] *H. Vandenberghe/M. Van Quickenborne/P. Hamelink*, Overzicht van rechtspraak. Aansprakeli jkheid uit onrechtmatige daad (1964 1978), [1980] *Tijdschrift voor Privaatrecht* (TPR) 1170 1171.

[28] This is also the formulation chosen in the European Directive on Product Liability of 25 July 1985: liability is excluded if the producer can prove that, having regard to the circumstances, it is probable that the defect did not exist at the time when the product was put into circulation.

30 One could argue that holding a person liable for an unforeseen damage will not give an incentive for an injurer to take more optimal care, because unforeseeability means that the injurer's subjective probability of the occurrence of the damage is zero. In this case, although the injurer has to pay infinite damages, his expected damage remains zero because the subjective probability of the damage is zero; and hence his optimal care is also zero. In this regard, holding an injurer liable for the unforeseen damage could actually reduce social welfare.

31 However, one may argue that exposing the injurer to liability, regardless of the unforeseeability of the damage, is efficient as it will induce the injurer to acquire as much information as possible in order to prevent the damage. In addition, with regard to the GMO case, one could also argue that although the exact vectors of cross-pollination and the magnitude of damage might be uncertain, the cross-pollination itself is a real threat[29]. In this regard, Repp argues that the fact that GM crops planting is usually undertaken with the contractual obligation to establish a buffer zone has implicitly shown recognition of the possibility of cross-pollination.[30]

32 Consequently, it would be too easy simply to state that the tortfeasor will only be held to comply with the "old" standard of care and will never be liable for risks which he could not foresee. Indeed, it has equally been stated in the literature that the foresight that there may be liability *ex post* will obviously give incentives to obtain information about risk to industrial operators.[31]

33 The fact that there may be *ex post* liability even if technology changes is one of the powerful arguments made in law and economics in favour of liability for the so-called development risk. This should give an operator appropriate

[29] Ellstrand has provided several conclusions with regard to gene flow from GM to non GM crops. First, mating between crops and their wild relatives is common. In this case, mating between GM crops and non GM relatives is also possible. Second, gene flow does not necessarily lead to serious impacts. Third, natural hybridizations may lead to the problems of increased weedi ness and invasiveness of some unwanted plants. Fourth, natural hybridizations may also lead to the risk of extinction of wild relatives. Fifth, gene flow varies both between species and within species. Sixth, gene flow may occur at high rates and over high distances. See for more detailed information in: *N.C. Ellstrand*, Current Knowledge of Gene Flow in Plants: Implications for Transgene Flow, [2003] *Philosophical Transactions: Biological Sciences*, Vol. 358, No. 1434, 1166 1168.

[30] *R.A. Repp*, Biotech Pollution: Assessing Liability for Genetically Modified Crop Production and Genetic Drift, [2000] *Idaho Law Review* 36, 615A. Similar opinion has been advanced by Endres, who argues that the possibility of cross pollination is supported by some studies showing that transgenic pollen may be carried by vectors to a great distance even beyond the buffer zone. See: *A.B. Endres* (supra fn. 25) 487. Lewis also shares this opinion by arguing that when released into the environment, GM crops may cross pollinate with other plants due to wind or animal pollina tors; therefore, so the author argues, the risk of cross pollination "is almost guaranteed". *S.K. Lewis*, Attack of the Killer Tomatoes? Corporate Liability for the International Propagation of Genetically Altered Agricultural Products, [1997] *Transnational Lawyer* 10, 186.

[31] This point is discussed in *S. Shavell*, Liability and the Incentive to obtain Information about Risk, [1992] JLS, 259 270; see also *L.T. Visscher/H.O. Kerkmeester*, Kenbaarheidsvereiste en gewoonte als verweren tegen een aansprakelijkheidsactie: een rechtseconomische benadering, [1996] *Tijdschrift voor Milieuschade en Aansprakelijkheidsrecht* (TMA) 48 57.

incentives for investments in research to acquire information about risk and about optimal technologies to prevent the risk.

34 The question, however, arises whether this reasoning can also be used to justify a retrospective change of a liability rule or changes in the standard of care itself. The argument is hence a totally different one if not only the nature of the risk changes but the liability rule itself. The economics of tort law assume that future incentives for prevention will be affected, given the legal regime in force. Hence, it is hard to defend that an *ex post* change in the liability rule will positively affect the incentives for proper behaviour which was not considered wrongful at all at the time when the act was committed by the industrial operator. One can expect an operator to assume that new risks may emerge, but hardly that the contents of the law will change. Requiring this would lead to an inefficiently high demand for preventive measures and thus to over-deterrence. Hence, retrospective liability indeed seems problematic, taking into account the deterrent function of tort law.

35 From this it follows that there apparently is a dilemma: on the one hand it is obviously useful that the standard setting process in civil law is seen as a process of learning whereby the standard of care is not static, but dynamically changes in time.[32] It would obviously be wrong to state that due care standards should never change. There may be many reasons, for instance new technological insights, leading judges to the efficient decision that a more stringent standard of care can be applied. This new case law can, moreover, have an important signalling function for other parties in the market who can again, adapt their future behaviour. But the question obviously arises what should be done with the individual defendant in the particular case in which a new standard of care is set. Should we sacrifice him for the benefit of a more efficient standard in the future and make him retroactively liable although his behaviour was not considered wrongful at the time when it was committed? There is a possible way out of this dilemma presented by – inter alia – the German Supreme Court.[33] The Supreme Court held in that particular case that an operator violated a general duty of care given the fact that technology had changed. However, at the same time, the Court also held that the operator was not to blame for the violation of the duty of care, since this was not foreseeable. This approach is known in the American literature as the "prospective overruling", meaning that a court follows an old duty of care in this particular case (with the result that there is no finding of liability), but announces that it will follow a different decision in the future.[34] This seems to be both an efficient and a just solution: on the one hand, a preventive effect is

[32] This argument has been powerfully stressed by *C. Ott/H.B. Schäfer*, Negligence as Untaken Precaution, Limited Information and Efficient Standard Formation in the Civil Liability Sys tem, [1997] *International Review of Law and Economics* (IRLE) 15 29.

[33] See *Bundesgerichtshof*, 23 October 1984, [1985] *Neue Juristische Wochenschrift* (NJW) 16 20 and *Bundesgerichtshof*, 14 March 1995, [1985] NJW, 26 31.

[34] This has been defended in the Dutch legal literature by *J. Drion*, Stare Decisis. Het gezag van precedenten (1950) and by *O. Haazen*, De temporele werking van een rechterlijke uitspraak, in: *H.G. Schermers/Th. L. Bellekom/P.T.C. Van Kampen* (eds.), De rol van de rechter in de moderne Westerse samenleving (1993) 171 207.

achieved for the future since future potential tortfeasors know that a new and more stringent due care standard will apply. On the other hand, it seems fair not to apply this new standard with respect to the particular defendant in that particular case, who could indeed not have known that new rules would apply.

In sum, the discussion above makes clear that in fact a distinction has to be made (although the issues seem to be confounded sometimes) between on the one hand a retrospective application of a new liability regime and on the other hand the liability for development risks. A liability regime for risks which are not known yet today is not necessarily inefficient, precisely since, if this is known in advance, it will give incentives to require information on these new risks and on the optimal techniques to prevent the risk. Thus a strict liability, also for development risks, might provide appropriate incentives for a dynamic investment in optimal preventive techniques. This however does not justify a retrospective application of new standards or new legislation, which could never have positively affected future incentives for prevention. In other words: a liability for development risks is not inefficient as long as it may positively influence incentives for prevention and as long as the development risk liability is not a disguised retroactive liability.[35] 36

The – justified – fear of retroactivity probably explains why legal systems are often reluctant to introduce liability for development risks. For instance, in the context of the Product Liability Directive we can point to Article 7 (b) which explicitly excludes liability if the producer can prove that, having regard to the circumstances, it is probable that the defect did not exist at the time when the product was put into circulation. Moreover, the real "state-of-the-art defence" is included in Article 7 (e) which states that the producer shall not be liable if he can prove that the state of scientific and technical knowledge at the time when he put the product into circulation was not such as to enable the existence of the defect to be discovered.[36] However, Article 15.1.b provided for an option for Member States to nevertheless introduce liability for development risks. This option was only used by Luxembourg and Finland.[37] 37

(c) Contributory negligence

We indicated above that both a strict liability rule and a negligence rule will lead to the optimum in cases where the victim's care does not influence the 38

[35] A similar balanced conclusion concerning the efficiency of a development risk defence is reached by *G. Wagner*, [1999] VR, 1450.

[36] The state of the art defence has also been addressed in the American context by *J. Boyd/D. Ingberman*, [1997] JLS, 433 473. They show that the "customary practice test" tends to induce inadequate safety, whereas the "technological advancement test" tends to induce excessive safety.

[37] And by Spain for food on medical products as well as by France for products derived from the human body. See the overview of the transposition in domestic law, provided in the *Green paper on the liability for defective products* (COM (1999) 396 final of 28.7.1999) 35 36. The issue of foreseeability defence will be discussed further in section III.

probability of an accident and where only care (and not the activity level) can influence the risk. Most accident situations are, however, "joint care" cases.[38] In this situation the risk is also influenced by the behaviour of the victim. A simple strict liability rule would not lead to an efficient result, since the victim has no incentive to spend on care. To remedy this problem, the victim might be considered "contributory negligent" if he does not take due care. A contributory negligence rule, as known under Common Law, excludes a right to compensation for the victim who did not take due care.

39 Assuming that the legally required level of care for the victim is equal to the efficient care, the victim will have the incentive to take optimal care. If he did not take due care he would be found negligent and would receive no compensation. An efficient result will also follow both under a negligence rule and under a negligence rule with a contributory negligence defence. In both cases the injurer will take efficient care and the victim will (being fully exposed to the risk), in order to avoid bearing the loss himself, take efficient care as well. Discussing the economic model of tort law, we therefore indicated that both a strict liability rule in combination with a defence of contributory negligence and a negligence rule (with or without contributory negligence) will give appropriate incentives to the victim to take efficient care.[39]

40 A comparative negligence rule has the effect of proportionally dividing the loss between the injurer and the victim if both committed a fault. Under this rule the right to compensation will be proportionally reduced if the victim was negligent. The injurer will still take efficient care to avoid liability, while the victim still takes care to minimise his own loss.[40] The efficiency of this rule is debated in the literature. Haddock and Curran point to difficulties in analysing the comparative benefits of comparative negligence versus a contributory negligence defence.[41] It is well known that Posner is an opponent of this rule.[42] According to him, the rule causes considerable administrative costs, without any compensating benefits for the incentives to take care. Not only is an intervention of the legal system necessary to shift a part of the loss from the victim to the injurer, but judges will also have to examine the faults of both parties and the proportion to which they contributed to the loss. Posner argues that comparative negligence makes economic sense only when society wants to use the tort system to provide insurance to accident victims.

41 In sum, if a strict liability rule is proposed for GMO damage, some defence should be added to take account of the behaviour of the victim, but this can

[38] Although we already argued above that environmental pollution is probably a good example of a truly unilateral case.

[39] *J.P. Brown*, [1973] JLS, 340 342; *G. Calabresi*, [1975] Yale L.J., 663; *W. Landes/R. Posner*, [1981] Ga. L. Rev., 880 882.

[40] *D. Haddock/C. Curran*, An Economic Theory of Comparative Negligence, [1985] JLS 14, 59 63.

[41] *D. Haddock/C. Curran*, [1985] JLS, 59 63.

[42] *R. Posner*, Economic Analysis of Law (1998) 187 189.

either be a contributory or a comparative negligence rule. To be clear: a strict contributory negligence rule, meaning that the victim loses the claim on compensation entirely in case of his negligence, is practically no longer applied. Most legal systems have turned to a proportionate reduction of the compensation due to the victim. If on the other hand a negligence rule is applied to GMO damage, it is not strictly necessary to add a contributory negligence defence[43].

(d) First use defence

The first use doctrine (also referred to as the coming-to-nuisance defence) relates to discussions that arise when, for example, a factory was located in a relatively empty area and is afterwards confronted with neighbours who "came to the nuisance" and then claim compensation or even the relocation of the factory. This problem is widely discussed in law and economics literature[44] and more specifically by Wittman.[45] This problem could equally play a role in case of damage caused by mixture with GMOs. Suppose that the operator of a GMO field was the first mover and that e.g. another farmer knowingly located himself next to the operator who handles GMOs, being well aware of that particular risk. Could one then argue that the newcomer has knowingly "come to the nuisance" caused by the GMO and that therefore liability for damage inter alia caused by mixture should be excluded? 42

The starting point for this literature is that it will usually first be investigated whether the harm to the "newcomers" can be prevented or reduced by preventive measures to be taken by the existing factory. If this is the case and transaction costs are zero, Coase teaches us that the efficient preventive device will be installed irrespective of the legal rule. If transaction costs are prohibitive, a liability rule can force the existing firm to implement the preventive measures. 43

[43] A contributory negligence defence may arise, for example, in the form of the infringement of patent right of a GM crops producer. We could refer to the *Monsanto v. Schmeiser* case, in which the defendant was found guilty of the infringement of Monsanto's patent rights for herbicide resistant canola. See: *J.L. Fox,* Canadian Farmer Found Guilty of Monsanto Canola Patent In fringement, [May 2001] *Nature Biotechnology* 19, 396 397. The ruling of the court of this case has, however, been severely criticized as the court ignored the fact that the defendant did not use glyphosate, a herbicide to which the patented GM canola is supposed to resist. Some authors ar gue that if the possession of hybrids containing the patented gene is already a sufficient ground for defendant liability for the infringement of a patent right, then the question of the defendant's intention should be seriously considered by the court. Otherwise, a farmer whose land has been contaminated by GM crops and, hence, unwillingly grows the hybrids, will be found guilty for the patent infringement. See: *M. Lee/R. Burrell*, Liability for the Escape of GM Seeds: Pursuing the 'Victim'?, [2002] *Modern Law Review* (MLR) 65, 523 525; also: *H. Preston* (supra fn. 24) 1167 1169.

[44] See e.g. *R. Cooter/T. Ulen* (supra fn. 1) 170 185.

[45] *D. Wittman*, First come, First Served: an Economic Analysis of 'Coming to Nuisance', [1980] JLS, 557 568. See also *R. Epstein*, Nuisance Law: Corrective Justice and its Utilitarian Con straints, [1979] JLS, 72 73; *D. Dewees*, Tort Law and the Deterrence of Environmental Pol lution, in: *T.H. Tietenberg* (ed.), Innovation in Environmental Policy, Economic and Legal As pects of Recent Developments in Environmental Enforcement of Liability (1992) 139 and *T. Merrill*, Trespass, Nuisance and the Costs of Determining Property Rights, [1985] JLS, 13 48.

If the conditions for liability are met, the existing firm will usually not be successful in claiming the coming-to-nuisance defence. This has to do with the fact that in case law these issues are usually dealt with in an *ex post* perspective, when people have already moved to the vicinity of the factory and the question is simply asked in an *ex post* perspective whether additional investments in preventive measures could have reduced the harm beneficially. Liability law then gives an incentive to invest in efficient safety equipment, even though the victims "came to the nuisance". The problem with this solution, however, is that, looking at it from an *ex ante* perspective, it removes incentives for potential victims not to locate to the vicinity of the GMO field.[46] However, it will generally, especially in highly occupied areas, be difficult for farmers to choose their location in such a way that they could never locate in the vicinity of a GMO field. The GMO field on the other hand may have the possibility to invest in preventive mechanisms to reduce harm for third parties.

44 Obviously a lot of these conflicting uses of property rights, of which there are many examples in case law, can be prevented if it could be established *ex ante* which area is, given its specific properties, best suited for a certain activity. Wittman argues that the goal of zoning is precisely to determine that, for example, in a beautiful hilly landscape with trees a residential area can better be situated than heavy industry, taking into account such factors as limited transport possibilities, the potential of serious environmental degradation in this ecologically sensitive area, etc. Ideally zoning could lead to an *ex ante* fixing of a destination for certain areas. The same could thus apply to zoning for GMO fields and non-GM crops as well.

45 Problems specifically arise usually *ex post*, when there are no *ex ante* decisions available concerning the designation of a certain area and in addition a further reduction of harm to the citizens is not possible through cost effective measures. This is particularly the case when planting GM crops is considered as a normal practice or merely an extension of such a practice. In this case, we could expect that there will be no special area designated for GM crops planting. Consequently, a victim of contamination from GM crops may find it difficult to show the magnitude of the damage he suffers relative to the social benefits of GM crops and to show that planting GM crops in his area is not a normal practice[47]. However, by referring to a court ruling in Canada, one commentator argues that the so-called "normal farm practice" should be weighed relative to the effects on neighbouring property owners, including the non-GM crops farmers[48]. In this regard, the victim could rely on the non-reciprocal risk of GM crops.

46 The question then arises how this conflicting use of property rights has to be resolved in this *ex post* perspective. In some cases one should examine whether

[46] Compare *D. Wittman*, [1980] JLS, 567 568.
[47] *D.L. Kershen* (supra fn. 5) 459.
[48] *J.M. Glenn*, Footloose: Civil Responsibility for GMO Gene Wandering in Canada, [2004] *Washburn Law Journal* (Washburn L.J.) 43, 556 557.

the costs of nuisance have already been taken into account in the price of a certain property, in which case there would already have been a compensation for the externality. Assume that a new railway station is built and that surrounding land is sold for a relatively low price. In that case the relatively low price a prospective owner pays for the land he purchases can be considered as a compensation for future nuisance to be caused by the railway station. This will then exclude a subsequent claim by the property owner against the railway station. This is not only true for the owner who purchased at a low price, but also if, for example, a subsequent purchaser were to become owner of the piece of land. Again he should have been informed of the presence close to a railway station (which is obviously easily visible) and realise that future nuisance to be caused by the railway station is compensated for in the relatively low price he pays. This could thus equally play when a farmer purchases land at a relatively low price next to land where GM crops are handled.

47 Wittman therefore rightly claims that the foreseeability of the nuisance is an important criterion in most of these cases. A neighbouring farmer thus will have far more possibilities to claim compensation if, for example, the harmful activity (which was first relatively innocent) expands in a totally unforeseeable way (e.g. because the destination of the area is changed). Once more: if the "surprised owner" is compensated for the additional harm caused by the unexpected and unforeseeable expansion by the firm, this compensation is final. This means that he is compensated also for the fact that the price for his land will have decreased as a consequence of the expansion of the particular activity. A potential new purchaser can then again purchase the land at a relatively low price but cannot claim compensation again from the injurer who already paid compensation once to the previous owner.

48 More difficult are the situations where the conflicting use of property rights cannot be dealt with by paying compensation for the unreasonable nuisance caused. In some cases the conflict may be so important that it can only be solved by the relocation of one of the two parties involved. This solution will typically be reached if the magnitude of the damage caused is much larger than the lowest relocation costs. If relocation is therefore the efficient solution, Wittman claims that it will have to be established whose relocation costs are the highest in relation to the importance of the externality caused. If it can be established that the relocation costs of the existing farmer would be much lower than the relocation costs of many neighbours even if they came to the nuisance, the relocation of the existing farm would still be the efficient solution since his relocation costs are the lowest.

49 Obviously, the question who came first will not play a role in answering the question who will have to relocate, but possibly when answering the question who will have to pay for the relocation costs. If the new neighbours came to the nuisance in a case of foreseeable harm, one could claim that even though the existing farmer will have to relocate (because of the lower relocation costs) the citizens who wrongfully came to the nuisance may be liable to pay (part

of) the relocation costs of the first mover. The latter is obviously important to give new farmers (and citizens!) in an *ex ante* perspective correct incentives to choose wisely concerning their location decision. If they foreseeably locate next to a harmful activity (like a farmer applying genetic modification) they can afterwards hardly claim that the farmer should relocate and should moreover do so at his own costs.

3. Influence of regulation

50 So far we presented liability rules from an economic perspective as instruments to provide incentives to prevent damage caused by GMOs. In reality of course, as the introduction with the description of the objective of the study also makes clear, GMOs are subject to a great deal of safety regulation. The goal of this safety regulation is precisely the prevention of damage. Thus a much more important role will in practice be played by safety regulation than probably by liability rules, at least as far as prevention is concerned. This, by the way, also corresponds with the economic criteria for safety regulation as they have inter alia been developed by Shavell.[49] Indeed, information on the optimal ways to prevent damage caused by the use of GMOs is probably more readily available with a regulator than with the potentially liable operator. Thus the informational advantage is a *first* important criterion in favour of safety regulation. *Second*, there may be a serious insolvency risk. That plays from the moment that the damage that could be caused as a result of the GMO mixture is higher than the wealth of the particular operator. The damage should in principle not be catastrophically high (although one could of course imagine damage along the food chain with far reaching consequences to many consumers or at least leading to large economic losses). There is always the likelihood that operators are organized as legal entities. Legal entities enjoy the limitation of liability and thus there is always the danger that they will externalize harm to third parties.[50] *Third*, there may be a risk that there is a long time lapse between the moment that the mixture (or any other source of GMO damage) takes place and the moment that the damage occurs. In addition, there may be difficulties for the victim to prove a causal relationship between his damage and the acts of a particular operator. These latency and causation problems may lead to situations whereby tort law is not used even though the conditions for liability are fulfilled. When thus the threat of a liability suit will not provide sufficient deterrent effect, this provides another argument in favour of regulation.

51 Although Shavell's criteria thus provide a strong argument to control GMO risks *ex ante* through regulation, in individual cases there can still be dam-

[49] See *S. Shavell*, Liability for Harm versus Regulation of Safety, [1984] JLS, 357 374; *S. Shavell,* A Model of the Optimal use of Liability and Safety Regulation, [1984] *Rand Journal of Economics* (Rand J. Econ.) 271 280.

[50] See *H. Hansman/R.H. Kraakman*, Toward Unlimited Shareholder Liability for Corporate Torts, [1999] Yale L.J. 100, 1879 1939. Because of this danger of using the corporate structure for ex ternalizing harm to involuntary creditors Hansman and Kraakman plead in favour of unlimited shareholder liability for corporate torts.

age. Then again, liability under tort comes into the picture and the question of course arises how regulation influences the liability system and *vice versa*.

52 The first question that arises is whether violation of a regulatory standard concerning GMOs should automatically be considered a fault under tort law and thus lead to liability. Most legal systems consider a breach of a regulatory duty evidence of negligence per se.[51] One of the reasons for introducing safety regulation to control GMO risks is, as was mentioned above, that the regulator will usually possess better information to evaluate the efficient standard of care than the parties involved. Hence, regulation passes on information to the parties on the efficient standard of care, but equally to the judge. The judge may lack the necessary information to find out what the particular care is that could be required from the person handling the GMO. Therefore, the statutory standard can guide the judge in a liability case.

53 A more difficult question may arise as to whether compliance with a regulatory standard could release an injurer from liability. Several authors argue that since a GM crop has undergone a pre-market test, in which a risk assessment has been carried out prior to the commercialisation of the crop, as long as the injurer has followed the requirements for planting the GM crop, such as establishing a buffer zone, he should not be liable for the damage of cross-pollination. In this case, the injurer may argue that the damage is in fact unforeseeable[52]. However, as Smyth and others have put it, although regulatory standards have been followed, many species could still possibly wander to their wild relatives, which potentially would create environmental problems[53]. This means that a regulatory standard does not necessarily remove the risks of cross-pollination, since some species may wander beyond the buffer zone and pollinate with other plants. Again, one could argue that the risk of cross-pollination is inevitable. The question will be whether the impacts of such a pollination are significant.

[51] See for instance *K.S. Abraham*, The Relation between Civil Liability and Environmental Regu lation: An Analytical Overview, [2002] Washburn L.J. 41, 379 398.

[52] *C.P. Rodgers*, Liability for the Release of GMOs into the Environment: Expliring the Bounda ries of Nuisance, [2002] *Cambridge Law Journal* (C.L.J.) 62(2) 390 and 400. However, the author argues that the authorization itself does not constitute a defence. A firmer rejection of the idea of holding an injurer liable for unforeseeable damage is given by Bergkamp. The author argues that deliberate release of GMOs undertaken in compliance with regulations and condi tions prior to authorization is quite unlikely to create foreseeable and significant risks. Accord ingly, only "non compliant GMOs or activities involving GMOs conducted in an irresponsible way" that could pose the risks should hence be subjected to liability. *L. Bergkamp*, Allocating Unknown Risk: Liability for Environmental Damages Caused by Deliberately Released Ge netically Modified Organisms, [2000], available at SSRN: http://ssrn.com/abstract 223068, 25. The author goes on by refusing the proposal of singling out biotechnology in a specific liability system. He argues that concerns about environmental impacts of GMOs have been triggered by the fear of the unknown, unforeseeable, and even non existent risks of GMOs, which cannot be adequately dealt with by a specific liability system. Ibid., 28 29.

[53] *S. Smyth/G.C. Khachatourians/P.W.B. Phillips*, Liabilities and Economics of Transgenic Crops, [June 2002] *Nature Biotechnology* 20, 537 538. As quoted by Endres, a study conducted in the UK found pollen from GM crops have been carried by bees 4.5 kilometres away from the test field. *A.B. Endres* (supra fn. 25) 456.

In this case, the injurer may still be found liable although he has complied with the regulatory standards[54].

54 Consequently, although the non-compliance with a regulatory standard is a sufficient reason for an injurer's liability, the reverse is not true: following regulation should, from an economic perspective, not necessarily free the GMO operator from liability. The reason to reject this so-called regulatory compliance defence from an economic perspective is that the regulatory standard is in some cases merely a minimum[55]. The efficient standard can be higher and thus liability should supplement regulation in this case to provide the GMO operator with incentives to take efficient care to prevent the damage.[56] Exposure to liability does provide the GMO operator with incentives to take all efficient precautions, even if this requires more than merely following the regulation. This role is moreover an important remedy for the unavoidable capturing of administrative agencies which may lead to inefficiently low regulatory standards. Exposing the GMO operator to liability even though the operator followed regulation or the conditions of a license is thus, from an economic perspective, an important tool to guarantee that the operator will take efficient care.

IV. Causation

1. General

55 Problems can of course arise as far as the requirement is concerned that a causal link should be established between the alleged damage and the presence of the particular GMO concerned. The economic analysis of law has paid a lot of attention to the requirements that should in general be attached to causa-

[54] Khoury and Smyth argue that although a risk assessment prior to an authorization of GM crops revealed the remoteness of risks, these risks could still be considered as foreseeable based on public concerns. This is because, as the authors argue, the absence of knowledge does not mean the absence of public concerns about possible risks. As a result, the injurer will still be held li able if these risks materialize in the future. To support this argument, the authors resort to the precautionary principle, by which the injurer is liable when the uncertain risks of serious mag nitude materialize in the future. *L. Khoury/S. Smyth*, Reasonable Foreseeability and Liability in Relation to Genetically Modified Organisms, in: The 9th ICABR International Conference on Agricultural Biotechnology: Ten Years Later (2005) 20 21.

[55] Some countries may have even not only minimum, but also sub optimal regulatory standards for GMOs. See for example the critics of Bratspies concerning the US regulation on the com mercialization of Bt crops. He argues that the agencies responsible for the release of Bt crops have abandoned the precautionary principle, and instead used the most optimistic estimates as the basis of their decision. In addition, there is no clear mechanism to ensure the growers' compliance with the requirement set by the seed companies, as it could be assumed that it is not in the companies' interest to enforce their requirement. See: *R. Bratspies*, The Illision of Care: Regulation, Uncertainty, and Genetically Modified Food Crops, [2002] *New York University Environmental Law Journal* (NYU Env. L. J.) 10, 346. Assuming that this allegation is true, releasing an injurer just because he has followed such a non optimal regulatory standard, may create too much harm for society, in which case the price of GM products does not represent the true social costs.

[56] Compare *P. Burrows*, Combining Regulation and Liability for the Control of External Costs, [1999] *International Review of Law and Economics* (IRLE) 19, 227 242.

tion. It would lead us too far to discuss these in any detail at this moment.[57] Shavell explains in simple words that there is a good economic reason to limit the liability of an injurer to cases he has really caused. If the requirement of a causal link did not have this limiting effect on liability, the result would be that many potentially beneficial activities in society would no longer take place since in effect an operator would then also be held liable for damage which did not result from his acts. A liability for damage which is not the result of the own activity of the operator would thus be considered as crushing, so Shavell holds.[58] Thus it makes sense to limit the liability of the operator who handled GMOs to the damage actually caused by the GM crop.

2. Burden of proof

A first question that arises in this respect is on whom the burden of proof should lie in case there is uncertainty over causation. Uncertainty can arise for instance when there may be many different sources and it is not clear what precisely caused the damage to a non-GM crop. Also, there may be multiple causes. To all of these issues of causal uncertainty, there is both a procedural aspect (who should bear the burden of proof?) and an aspect of contents (how should the law deal with uncertainty over causation?). 56

Traditionally, the plaintiff, i.e. the victim, should bear the burden of proof regarding the elements of the liability rule that he uses to claim damages[59]. He should, for example, prove the foreseeability of cross-pollination to his land, the presence of hybrids from his non-GM crops with the injurer's GM crops, and the damage suffered as a result of this cross-pollination. Almost inevitably, the victim needs to rely on experts' opinion to support his claim[60]. 57

However, one may argue that the court may place the burden of proof on those who can acquire information more cheaply. Based on such an efficiency argument, more important questions will no longer be about the burden of proof, but about the standard of proof. The issue of standard of proof is particularly important if we are faced with uncertainty concerning causality. 58

[57] See *G. Calabresi*, Concerning Cause and the Law of Torts, [1975] *University of Chicago Law Review* (U. Chi. L. Rev.) 69 108; *S. Shavell*, An Analysis of Causation and the Scope of Liabil ity in the Law of Torts, [1980] JLS, 463 516 and *W. Landes/R. Posner*, Causation in Tort Law: An Economic Approach, [1983] JLS, 109 134.

[58] See *S. Shavell*, Uncertainty over Causation and the Determination of Civil Liability, [1985] JLE, 587 609 and *S. Shavell*, Economic Analysis of Accident Law, 108.

[59] In the absence of a speficic liability system for GMOs, the victim should resort to one of several liability rules, namely tresspass, private nuisance, negligence, strict liability, or product liability. Each of these rules has its own elements that should be proven by the victim. For a brief sum mary about the elements of nuisance, negligence, and strict liability, readers may consult: *T.N. Vollendorf*, Genetically Modified Organisms: Someone is in the Kitchen with DNA, Who is Responsible when Someone Gets Burned?, [2001] *Mississippi College Law Review* 21, 48 53.

[60] The burden of proof borne by the victim might be reduced if GM products are required to be labelled with their genetic markers, as it has been proposed in Europe. See: *A.B. Endres* (supra fn. 25) 487.

3. Causal uncertainty

59 There is a real likelihood that, as we just mentioned above, many issues of causal uncertainty could arise in case non-GM crops are damaged as a result of mixture with GM crops. There can be different sources of presence of GMOs, whereby the question arises how the law should deal with uncertainty when it cannot be established with certainty who the precise cause of the problem was. Potentially, the law could provide a variety of solutions to this problem.

- One could, on the one hand, judge that as soon as there is any statistical chance that a certain activity (or product) may cause a certain damage, all victims receive 100% compensation of their damage.
- The second possibility is to refuse the claim of the victim unless there is 100% certainty that the tort caused the damage.
- The third possibility is to award compensation only when the probability that the damage was caused by the tort passes a certain threshold of, say, 50%. This threshold rule is a kind of "all or nothing" approach: if the probability is lower than the threshold, the victim receives no compensation at all; if the probability is higher than the threshold, the victim receives full compensation. This threshold rule is known in the American literature as the "more probable than not" solution, referring to the fact that the plaintiff must convince the judge that it is "more probable than not" that its damage was caused by the tort.
- The final solution is to take into account the probability that the tort caused a certain damage and to award compensation, taking into account this probability. This would mean that if the scientific expertise indicates that the likelihood of damage is, say, 40%, the victim can then receive compensation for 40% of his damage.

60 The way the law should deal with causal uncertainty has been addressed extensively in the economic literature, for instance by Rosenberg,[61] Kaye[62] and Shavell.[63]

61 Let us address more closely the various options addressed above. The *first* option would be to award a victim total compensation of damage, even if the probability that his loss was actually caused by the injurer's activity was relatively low, say 30%. In such a case, this means that we also know that there is a 70% probability that the damage (*e.g.* a certain illness) was caused through another event. If an injurer is held liable for the full amount even if there was

[61] *D. Rosenberg*, The Causal Connection in Mass Exposure Cases: 'Public Law' Vision of the Tort System, [1984], *Harvard Law Review* (Harv. L. Rev.) 851 929.

[62] *D. Kaye*, The Limits of the Preponderance of the Evidence Standard: Justifiably Naked Sta tistical Evidence and Multiple Causation, [1982] *American Bar Foundation Research Journal* (Am. B. Found. Res. J.) 487 516 and see *S. Gold*, Causation in Toxic Torts: Burdens of Proof, Standards of Persuasion, and Statistical Evidence, [1986] Yale L.J. 376 402.

[63] *S. Shavell*, Uncertainty over Causation and the Determination of Civil Liability, [1985] JLE 587 609.

only a 30% probability that his activity caused a loss, this will lead to too few incentives to invest in socially desirable activity, such as *e.g.* the development of genetically modified organisms.

This shows that the first solution, simply arguing that in case of causal uncer- 62
tainty the victims can claim full compensation, is inefficient and unjust. The same is obviously true for the *second* solution in which it would be required that the victim proves with 100% certainty that his damage has been caused by the tort. That requirement would mean that in many cases injurers would escape the clutches of the law whereas their activities have effectively created an additional risk. That solution would therefore amount to under-deterrence.

This therefore leads us to the two other solutions, often seen in tort law, being 63
either the requirement that a certain threshold should be passed or proportionate liability.

The threshold liability leads to a situation whereby the victim's claim is totally 64
accepted if the probability passes the threshold of, say, 50%. If the probability passes the threshold, compensation is in full, but if the probability is lower than the threshold, the victim receives no compensation at all. The disadvantages of this hard and fast solution are obvious. One problem, both from the victim compensation as well as from the deterrence perspective, is that the probability of causation could systematically be lower than the threshold. Assume that the probability were systematically 40% that a certain cancer would have been caused as a result of a certain activity. If the threshold were 50% this would mean that the enterprise exposing persons to this 40% risk would systematically escape the clutches of the law. Victims would not be compensated and the incentives towards accident reduction would be too low.[64] This seems inefficient and probably also unjust, since the enterprise has after all, in a number of cases, at least statistically, created certain losses. Assume that 100 cancer victims all file a lawsuit, in this particular example one would assume that 40 out of these 100 cancer cases would have been caused by the emissions emanating from the particular enterprise. However, for every individual the probability of causation would always be below the 50% threshold, so that the enterprise would not be held to compensate the victims in any of these cases. That is a clear disadvantage of this "all or nothing" approach which is inherent in the threshold liability.

A more fine-tuned alternative can be found by translating the probability of 65
causation by awarding the victim a proportionate amount of his damage. In practice, this would mean that if the probability that the victim's damage was caused by the injurer's activity was 40%, the victim would be compensated for 40% of his damage. From an economic perspective, the advantage of this proportionate liability is that it exposes the injurer precisely to the excess risk (in this case the additional number of cancer cases) that was caused by the

[64] *Id.*

(assumed wrongful) activity of the injurer. The enterprise will then, returning to the previous example, have to compensate 40% of all the damage of every particular victim, which amounts at the aggregate level to the same as compensating 40 out of 100 victims whose illness would have been caused by the enterprise.[65]

66 The result of this proportionate liability is that the injurer will receive optimal incentives for prevention, since he is precisely exposed to liability for the risk which was caused by his activity.[66] A proportionate liability rule therefore provides optimal incentives for accident reduction, so it is generally held in the economic literature.[67]

67 This proportionate liability rule has been defended by several American scholars and is also defended in the economic analysis of law. The negative consequences of causal uncertainty could then be limited. A proportionate liability rule is less rigorous than the all or nothing approach of the reversal of the burden of proof.[68] The proportionate liability rule would indeed mean that all victims can claim a proportion of their damage equal to the amount by which the power plant contributed to the loss. Thus the exposure to liability of the enterprise corresponds precisely with the amount to which the power plant contributed to the risk.[69] This proportionate liability rule could, more particularly in cases of product liability, take the form of the market share liability.[70]

4. Multiple actors

68 A related problem, also having to do with causal uncertainty, is how one should handle the situation where multiple actors are involved. This can again have different sources. It could either be the case that there are potentially many GM crops that could have affected the non-GM crop. The other possibility is that there are various liable actors in the vertical production chain. Again, as with the general issue of causal uncertainty, the law has basically a variety of options to solve this issue, the most realistic ones (and thus applied in the legal

[65] So *S. Shavell*, Economic Analysis of Accident Law (1987) 116.
[66] So *L. Bergkamp*, Liability and Environment (2001) 290 291.
[67] See on this proportionate liability *J. Makdisi*, Proportional Liability: A Comprehensive Rule to Apportion Tort Damages Based on Probability, [1989] *North Carolina Law Review*, 1063; *W. Landes/R. Posner*, Tort Law as a Regulatory Regime for Catastrophic Personal Injuries, [1984] JLS, 417 34 and *G. Robinson*, Probabilistic Causation and Compensation for Tortious Risk, [1985] JLS, 797 798. For a discussion of the possible legal foundation of a proportionate li ability rule see *A.J. Akkermans*, Grondslagen voor proportionele aansprakelijkheid bij onzeker causaal verband, in: *W.H. van Boom/C.E.C. Jansen/J.G.A. Linssen* (eds.), Tussen 'Alles' en 'Niets'. Van toedeling naar verdeling van nadeel (1997) 105 115.
[68] See *G. Brüggemeier*, Liability for Water Pollution under German Law: Fault or Strict Liability, in: *J. van Dunné* (ed.), Transboundary Pollution and Liability: The Case of the River Rhine (1991) 88 91.
[69] *G. Robinson*, Probabilistic Causation and Compensation for Tortious Risk, [1985] JLS, 798.
[70] See also *P. Widmer*, Causation under Swiss Law, in: *J. Spier* (ed.), Unification of Tort Law: Causation (2000) 112 113.

system) are on the one hand a joint and several liability and on the other hand a proportional liability. A so-called market share liability whereby the liability is apportioned according to the market share of the operator is an example of such a proportionate solution to multi-actor causation.

At first sight, a joint and several liability rule appears as a regime whereby the legal system deviates from the principle that a tortfeasor should only be held liable for the damage which was caused by its own behaviour. Under joint and several liability, the tortfeasor is held liable in full also for damage which was not caused by its own behaviour. 69

One could therefore at first blush argue that a joint and several liability seems inefficient since it leads to over-deterrence: the injurer's liability is not limited to the risk created by its own activity. However, such a simple conclusion is (as usual) indeed too simple. One may argue that a distinction should be made between the situation of full solvency of all the contributing tortfeasors on the one hand and the situation in which either one or more of them are insolvent. In case of full solvency of all the actors, one can argue that there is no efficiency loss caused by joint and several liability.[71] In that case, the injurer who has to compensate the victim can in turn exercise a redress against the other parties who contributed to the loss in proportion to their contribution. Assuming that the other tortfeasors are fully solvent, the one who first paid only prefinances the compensation of the victim and will be able to recover a part of the damage paid. Thus, in the end, also under joint and several liability, the extent to which every contributor has to pay should be proportionate to their contribution to the risk. In that sense, a joint and several liability rule, combined with a right of recourse and solvent actors amounts to a proportionate solution. The exposure to liability of every tortfeasor in this model is limited to its own contribution to the loss and thus optimal incentives would follow. 70

Of course one could wonder what the additional benefit is of a joint and several liability rule compared to the situation whereby the victim would have to sue every individual tortfeasor separately. One could make a victim protection argument, simply on the basis of the fact that for the victim it is often more difficult to prove a causal link with the action of one particular actor. Thus it certainly makes the life of the victim easier if the victim can claim full compensation from one injurer who then has to exercise the right of redress against the other parties who contributed to the loss. However, in addition to this distributional argument, there are undoubtedly efficiency arguments in this particular case as well. They are probably not linked to a benefit in administrative costs. Indeed, whether either the victim has to sue e.g. five different tortfeasors or the victim just sues one tortfeasor and the latter exercises a right 71

[71] For a detailed analysis of joint and several liability when all defendants are fully solvent see *L. Kornhauser/R. Revesz*, Sharing Damages Among Multiple Tort Feasors, [1989] Yale L.J. 831 884 and for the analysis in case of limited solvency see *L. Kornhauser/R. Revesz,* Appor tioning Damages Among Potentially Insolvent Actors, [1990] JLS, 617 651.

of redress probably does not create much difference as far as the administrative costs are concerned. However, one could make the argument that the joint and several liability may give *ex ante* excellent incentives for mutual monitoring between potential joint tortfeasors.[72] Indeed, a victim may well encounter difficulties in proving a causal link between the action of every particular tortfeasor and the loss he suffered. That may result in too few claims and hence in under-deterrence. Shifting the risk to the injurers would mean that they *ex ante* have an excellent incentive to mutually monitor their activities. Joint and several liability in fact shifts the risks of uncertainty concerning the proof of the causal link to the injurers. The victim can suffice with suing just one of the many potentially liable injurers and claim full compensation. If the one injurer who is sued does not succeed in proving that others contributed to the loss, the damage will ultimately fall on him.

72 However, these arguments may not be valid any more under insolvency.[73] Indeed, the picture changes if the tortfeasors are no longer solvent. In that case, the risk of insolvency is shifted to the injurer who will be sued by the victim. If in that particular case one would assume that e.g. only the solvent injurer is sued by the victim and he has no right of recourse (given the insolvency of the others). The effect would be that one (solvent) injurer would be held to compensate also for losses which he has not caused.[74] In case of insolvency, joint and several liability may thus violate the principle that the injurer should only be held liable to compensate in the proportion to which he contributed to the loss.[75]

5. Channelling of liability

73 One possible solution when various actors are potentially involved is to impose liability exclusively on one of those parties and to exclude the liability of all others. This is a solution which has been followed for instance in the nuclear liability conventions whereby the liability is channelled to the licensee of a nuclear power plant. In the conventions concerning damage caused by marine oil pollution a channelling of liability to the tanker owner can be found. Usually this channelling of liability means that one party is exclusively liable which hence means that victims cannot bring a suit against other parties who might have contributed to the damage as well. In some cases recourse actions

[72] An argument in that direction is made by *T. Tietenberg* (supra fn. 45).

[73] For an excellent analysis of the effects of various systems of extended liability see the recent paper by Boyd and Ingberman who argue that under certain conditions extended liability may promote cost internalisation, but that there are serious drawbacks as well. Hence, they argue that other solutions should be examined to cure the problem of undercapitalisation: *J. Boyd/D. Ingbergman*, The Vertical Extension of Environmental Liability through Claims of Ownership, Contact and Supply, in: *A. Heyes* (ed.), The Law and Economics of the Environment (2001) 44 70.

[74] Then joint and several liability would lead to over deterrence, so Bergkamp rightly argues: *L. Bergkamp* (supra fn. 66) 301.

[75] See equally *L. Bergkamp* (supra fn. 66) 153 154 who argues that joint and several liability may be unfair and may lead to over deterrence.

are still possible; in other cases these are excluded as well. Channelling of liability is sometimes defended as a device that would make the life of the victim easier. The victim would then know *ex ante* exactly against whom a law suit would have to be brought and difficult procedural issues in case of multi actor causation could be avoided. Also it is sometimes argued that channelling would increase the insurability of particular risks since only one party would have to take insurance cover. Nevertheless the overall appreciation of channelling of liability from an economic perspective is rather negative. Indeed, it has been argued that this channelling is inefficient because it has perverse effects on the incentives for care where the liability applies exclusively to one operator.[76] This is the case if channelling means that victims no longer have the right to sue another party who could influence the accident risk as well. Excluding that third party from liability is inefficient since his incentives for prevention would be diluted. That effect is obviously reduced if the licensee or operator who would be held liable still has a right of recourse against the third party or if a liability could be passed on the basis of contract, for example. In that case one could argue that the liability is simply transferred and that such a reallocation complies with the principles of the Coase theorem.[77] However, this private reallocation of liability may not always be possible and some of the conventions, moreover, even restrict the possibilities of a right of recourse. Channelling can hence hardly be considered as an efficient mechanism for the prevention of accidents.

74 In addition to this principle economic argument one could also argue that at the practical level channelling of liability might be difficult to introduce in the area of GMO damage. In case of oil pollution or nuclear accidents it is relatively easy to identify one liable party to whom liability can be "channelled" such as an operator or tanker owner. However, in case of damage caused to non-GM crops by GMO crops it is *ex ante* for the legislator far more difficult to identify to whom a potential liability should be channelled. Hence, in addition to the principle arguments against channelling one can equally wonder whether it would be practically possible to implement it.

V. Damage and remedies

1. Possible damage of co-mingling between GM and non-GM crops

75 Once a cross pollination between GM and non-GM crops occurs, the economic loss for the non-GM crops farmers will become a reality. One possibility is that the organic farmers may lose their organic certification, since many standards

[76] For a critical economic analysis of the channelling of nuclear liability see *T. Vanden Borre*, Transplantatie van 'kanalisatie van aansprakelijkheid' van het kernenergierecht naar het milieu (aansprakelijkheids)recht: een goede of een gebrekkige zaak?, in: *M. Faure/K. Deketelaere* (eds.), Ius Commune en Milieurecht, Actualia in het Milieurecht in België en Nederland (1997) 329 382.

[77] See *M. Trebilcock/R. Winter*, The Economics of Nuclear Accident Law, [1997] IRLE, 232 235.

only allow for a low level of GM crops or even zero tolerance of GM crops for a product to be marketed in an organic market. Repp observes that the loss of such certification may impose significant costs for the organic farmers, since they not only lose their future sales, but also the loss of the opportunity to recapture costs that have been invested for years to acquire an organic certificate[78]. Another possibility of damage that may result from co-mingling occurs because the presence of segregations between GM and non-GM food or between GM feed and non-GM feed[79]. The famous case for this type of damage is the StarLink case, triggered by the finding of the Cry9C gene from Aventis's StarLink, a GM corn specifically designated for animal feed, in corn for human consumption. This finding induced US corn farmers and producers to sue Aventis for the impacts of admixture between StarLink with corn for human food. No court decision has, however, been rendered in this case, since the parties settled the case outside the court, by which Aventis had to pay up to US$110 million[80].

76 The above two possibilities of damage can be considered as having a non-reciprocal nature, in the sense that only non-GM crops farmers can be adversely affected by admixture of GM and non-GM crops. There are, however, other possibilities of damage that may result from cross-pollination of GM crops with non-GM crops or their wild relatives, including the increased use of herbicides or pesticides. One, of course, may argue that such an increase results from the developments of herbicide-resistant weeds and pesticide-resistant insects, which occur both with GM and with non-GM crops. However, it could also be argued that a wider adoption of transgenic crops just increases the likelihood and speed of the development of such a resistance.

2. Damages in tort

77 Law and economics scholars usually hold that the amount of damages the injurer should pay should be at least equal to the victim's loss in order to provide optimal compensation to the injurer.[81] These so-called compensatory damages must be paid to the victim in order to give the victim an incentive to sue, which is essential to let the tort system provide an effective and credible deterrent. The duty to pay compensatory damages to the victim will moreover avoid victims taking inefficiently high precautions.[82] If the damages to be paid by the injurer fell short of the harm so that the expected payments

[78] *R.A. Repp* (supra fn. 30) 594 595.

[79] As long as such segregations exist, hence there also exist markets for non GM products, the risks of damage from co mingling will not be entirely removed. The risk of losing the entire or ganic market due to co mingling has motivated Canadian groups of organic farmers to sue two giant GMO producers, Monsanto and Aventis. The farmers argue that the entire organic market for wheat, worth as much as $17.5 million, is threatened due to the commercialization of GM wheat in Canada. See: *A. Bouchie*, [March 2002] *Nature Biotechnology* 20, 210.

[80] *L. Khoury/S. Smyth* (supra fn. 54) 12. See also: *S. Smyth/G.C. Khachatourians/P.W.B. Phillips* (supra fn. 53) 539.

[81] *R.A. Posner*, Economic Analysis of Law (6th ed. 2003) 192.

[82] *R.A. Posner* (supra fn. 81) 192.

would be below expected harm, the incentives to reduce the risk would be inadequate.[83]

Therefore the starting principle should be that the liable party should pay for the actual level of losses of the victim.[84] There is in addition an extensive economic literature for instance on the question on how life should be valuated in a tort case and more particularly on the valuation of non-pecuniary losses. In addition economists hold that in some cases damages should outweigh a low probability of detection and should therefore be "punitive". Punitive damages are thus meant to provide appropriate incentives to injurers in case where for instance through his malicious acts the probability of the tort being detected would be lower than one. 78

However, none of these specific cases seem to play a particular role in the case of GMO mixture, so that still the general rule applies that damages should be calculated in such a way as to compensate for the actual harm suffered by the victim. 79

3. Damages in contract

Economic literature has paid a lot of attention to the various types of damages that could be compensated in case a contract is breached. A variety of possibilities is indicated in the literature: 80

- Damages could be equal to the promisee's reliance loss (the costs he incurred in consequence of recently relying on the promisor's performance of the contract);
- Damages could be equal to the expectation loss (the loss of the anticipated profit of the contract);
- Damages could be consequential (in that sense they would also include the effects on the promisee's business on the breach)[85].

In addition parties could *ex ante* have agreed in the contract on the amount of damages in case of a breach, the so-called liquidated damages. Moreover, remedies other than damages could be possible such as either restitution or specific performance. 81

Shavell indicates that the damage measures should in principle provide parties incentives to perform.[86] The expectation damages should in principle make the potential victim indifferent between performance and breach. A damage measure which is thus based on the value of the expected performance is referred to as expectation damages.[87] Reliance damages refers to the fact that the promisee 82

[83] So *S. Shavell*, Foundations of Economic Analysis of Law (2004) 236.
[84] *S. Shavell* (supra fn. 83) 237.
[85] See further *R.A. Posner* (supra fn. 81) 118.
[86] *S. Shavell* (supra fn. 83) 304 ff.
[87] *R. Cooter/Th. Ulen*, Law and Economics (4th ed. 2004) 239.

may have invested in reliance on the promise. The breach of contract can thus diminish or destroy the value of the investment in reliance. In that hypothesis the promisee is thus made worse off than if he had not made a contract. In that hypothesis courts may award damages that place the victims of the breach in the position they would have been in if they had never contracted with the other party. The damages computed on this basis are referred to as "reliance damages". If these are computed correctly they should equally leave the potential victim indifferent between breach and no breach.[88]

83 Much more debated than expectation and reliance damages are so-called consequential damages. Law and economics scholars are rather hostile towards awarding a buyer also consequential damages for the simple reason that this may reduce his incentives for loss reduction as well. This problem more particularly arises according to Posner when the losses that would result from the breach of contract would be unforeseeable for the seller.[89] These types of damages are also sometimes referred to in the literature as "opportunity-caused" damages since the contract often entails the lost of an opportunity to make a profit based for instance on an alternative contract.[90] The opportunity-caused damages are thus seen as a form of negative damages (damnum emergens). To some extent the opportunity-caused damage can fit into the reliance damages in the sense that the promisee may invest in reliance on the contract and thus forgo an opportunity upon which he had relied.

84 All of these damage measures may of course play a role in cases of compensation for damage caused by GMOs. This problem of compensation for lost profits e.g. because the victim would suffer as a result of his crops being affected by the GMOs is of course well-known in the literature as the problem of "pure economic loss". Also in economic analysis the problem of whether pure economic loss should be compensated has been extensively studied.[91] It is held, as mentioned above, that the treatment of pure economic loss in contracts is less problematic than in torts since in contract law compensation is usually awarded both for the concrete damage actually incurred and for the lost profit. Dari Mattiacci, however, makes clear that whereas lawyers usually consider the compensation for pure economic loss a problem, economists traditionally consider economic loss the same as any other type of damage. The dichotomy between on the one hand pure financial losses and on the other hand physical damage to property or personal injury is not known in the economic analysis of law. The economists consider any loss a decrease in the victim's welfare, irrespective of whether this decrease derives from a physical or a monetary loss.[92] Economists have also criticized the approach of lawyers who hold that physi-

[88] See *R.Cooter/Th. Ulen* (supra fn. 87) 241.
[89] *R.A. Posner* (supra fn. 81) 127 128.
[90] *R. Cooter/Th. Ulen* (supra fn. 87) 242.
[91] An excellent overview of the literature in this respect is provided by *G. Dari Mattiacci*, The Economics of Pure Economic Loss and the Internalization of Multiple Externalities, in: *W.H. van Boom/H. Koziol/Chr.A. Witting* (eds.), Pure Economic Loss (2004) 167 190.
[92] So *G. Dari Mattiaci* (supra fn. 91) 169.

cal loss would be of greater importance for the law than financial loss. From an economic perspective also a financial loss is an externality which should be internalized.[93] The scope of this study does not allow us to examine this problem in further detail, but in general it can be held that also economic analysis holds that the compensation for pure economic loss should be constructed in such a way that liability rules provide incentives both to injurers and to victims to mitigate damage in an efficient manner.[94]

4. Remedies – Injunction

There is still a third type of question that could be asked in relation to the remedies. What if the potential victim sees the harm coming or has a case where harm continues? Can in that case injunctive relief be sought so that the judge can order the injurer to refrain from the damaging behaviour? In this particular case it would for instance mean that specific measures are ordered by the judge to the injurer to void further GMO mixture. 85

The economic literature makes a distinction as far as injunctive relief is concerned between the way property rights are protected and the way in which other rights are protected. Economists point at the fact that the typical remedy in case of a violation of a property right is an injunction. Damages are the usual remedy for torts whereas injunction is the usual remedy in case of a nuisance, hence a violation of a property right.[95] For the case of GMO mixture this would hence mean that when a neighbour's property right (enjoying a non-GM crop) were endangered by the presence of a neighbour using GMOs, an economist would thus predict that the remedy would be injunctive relief. However, the fact that a property right is granted and that the victim could theoretically use injunctive relief does of course not mean that this will necessarily be the result. The Coase theorem discussed above predicts that parties may engage in bargaining and when transaction costs are low this is precisely what will happen. Hence, the injurer may "buy" his right to pollute by paying damages to the victim. This would of course depend on what the efficient outcome is. But the Coase theorem holds that if transaction costs are equal to zero, successful bargaining can cure inefficient laws. Hence economists consider damages and injunctions as equally efficient remedies when transaction costs equal zero. Differences in efficiency thus depend on transaction costs.[96] If transaction costs are high, bargaining may be impossible. In that case the more efficient remedy is damages and no longer the injunction. The injunction could have as a result that an inefficient solution survives, whereas damages could be adjusted to harm done. Precisely because in a nuisance context where a property 86

[93] See *M. Bussani, V. Palmer and F. Parisi*, Liability for Pure Financial Loss in Europe: An Economic Restatement, [2003] *American Journal of Comparative Law* (Am. J. Comp. Law) 51, 113 162.

[94] For a comprehensive analysis of the problem of pure economic loss in tort see *G. Dari Mattiaci* (supra fn. 91) 167 190.

[95] See *R. Cooter/Th. Ulen* (supra fn. 87) 100.

[96] *R. Cooter/Th. Ulen* (supra fn. 87) 104.

right protection is enforced transaction costs are relatively low will the typical remedy be the injunction. The injunction is more particularly more efficient than damages when the parties can bargain with each other. The reverse is thus true in a high transaction costs setting, which is typically the tort case. Then economists would predict that the efficient remedy should be damages and not injunctive relief. This is a finding in a well-known paper by Calabresi and Melamed, which is often quoted in the law and economics literature.[97] They argue as follows:

- When there are obstacles to cooperation (high transaction costs), the more efficient remedy is the award of compensatory money damages;
- When there are few obstacles to cooperation (low transactions costs), the more efficient remedy is the award of an injunction against the defendants interference with the plaintiff's property.[98]

87 They therefore hold that when the nuisance is private and thus few parties are affected by it, the costs of bargaining will be low and the injunction may be the preferred remedy. This then prevents that the court should have to undertake the difficult job of computing damages. The injunction in this law and economics perspective is, however, not viewed as a remedy which would forever prohibit the offensive activity, but rather as an instruction to the parties to resolve their dispute through bargaining. If the harmful externality is of the public-bad type, bargaining is impossible because of high transaction costs and damages will be the more efficient remedy. Cooter and Ulen therefore hold that in choosing between injunctions and damages the court will have to examine the number of people affected by the externality. Only when the number of affected parties is low (this can often be the case with GMO damage) injunctive relief may be warranted.[99] This choice of optimal remedy is of course also closely linked to the coming to nuisance defence discussed above.[100]

88 If the court, however, tends to apply a permanent injunction and damages, the results might be different. In this case, the court should consider the social value of GM crops compared to the harms suffered by non-GM crops farmers. In this case, the court might look at the benefits of GM crops in general, ranging from an increasing productivity to serving as a solution to provide cheap and nutrition-rich food for the world. These benefits should, of course, be compared with the perils of GM crops and with the needs to provide non-GM products as an alternative for society. In particular, the benefits of individual GM crops farmers might be compared with the damage suffered by individual non-GM crops farmers. If the value of GM crops exceeds the harms suffered by non-GM crops farmers, then permanent damages is a preferable remedy. This is because, as the potential Pareto criterion suggests, efficiency means that the

[97] *G. Calabresi/Melamed*, Property Rules, Liability Rules and Ineliability: One View of the Ca thedral, [1972] Harv. L. Rev. 85, 1089.
[98] See for a summary of *Calabresi/Melamed, R. Cooter/Th. Ulen* (supra fn. 87) 104 107.
[99] *R. Cooter/Th. Ulen* (supra fn. 87) 168 169.
[100] See supra section III.2.2(d).

winner still gains after compensating the loser, and because GM crops, which are highly beneficial to society, are too important to be permanently stopped. An injunction to stop the use of GM crops might in that case be inefficient.

5. Financial limit

89 A further question that could be asked as far as damages and the remedies is concerned is whether there is any argument to put a financial cap or limit on the amount of damages due to the victim. To answer this question again a distinction has to be made between the contracts case (where *ex ante* bargaining was possible) and the tort case (where the victim is a third party and hence bargaining was impossible). In case of a contract, parties could of course *ex ante* agree to limit damages due to a specific amount which can be less than the actual loss suffered by the victim. If that were the case it is an explicit agreement concerning allocation of risk which will undoubtedly also have an effect on the price agreed between the parties. In that particular case, there is no objection against a limit. In fact it amounts to liquidated damages, an amount of damages *ex ante* agreed by the parties in case of breach of contract.[101]

90 A limitation of liability is far more complicated in the tort case. In the literature it has been indicated that there may be good reasons to favour a strict liability rule for major industrial accidents,[102] the main reason being that only a strict liability rule would lead to a full internalisation of those highly risky activities.[103] This strict liability rule is especially put forward in so-called unilateral accident situations, that is, where only one party influences the accident risk. Only with strict liability would the potential injurer also have an incentive to adopt an optimal activity level. This full internalisation is obviously only possible if the injurer is effectively exposed to the full costs of the activity he engages in and is therefore in principle held to provide full compensation to a victim. An obvious disadvantage of a system of financial caps is that this will seriously impair the victim's rights to full compensation. But if the cap is indeed set at a much lower amount than the expected damage, this would not only violate the victim's right to compensation, but the above-mentioned full internalisation of the externality would not take place either. From an economic point of view a limitation of compensation therefore poses a serious problem since there will be no internalisation of the risky activity. Indeed, if one believes that the exposure to liability has a deterrent effect, a limitation of the amount of compensation due to victims poses another problem. There is a direct linear relationship between the magnitude of the accident risk and the

[101] See supra no. 81.

[102] Above we argued that it will depend upon the specific circumstances of the case whether there is an argument in favour of strict liability for GMO damage. A crucial factor in that respect is what the respective contribution of both injurer and victim on the risk of GMO mixture is. We therefore assume here that the influence of the injurer is more important and that therefore the legal system has adopted a strict liability rule.

[103] *S. Shavell*, Strict Liability versus Negligence, [1980] JLS, 11 and *S. Shavell*, Economic Analysis of Accident Law (1987) 8.

amount spent on care by the potential polluter. If the liability therefore is limited to a certain amount, the potential injurer will consider the accident as one with a magnitude of the limited amount. Hence, he will spend on taking care to avoid that an accident will be caused with a magnitude equal to the limited amount and he will not spend on the care necessary to reduce the total accident costs. Obviously, the amount of care spent by the potential injurer will be lower and a problem of under-deterrence arises. The amount of optimal care, reflected in the optimal standard, being the care necessary to reduce the total accident costs efficiently, will be higher than the amount the potential injurer will spend to avoid an accident equal to the limited amount.[104] Thus, as a result of the cap too little care is taken.[105]

91 The conclusion is, however, different in case of bilateral accidents, where also the victim's behaviour may affect the accident risk. The standard argument against providing full compensation to victims (also of non-pecuniary losses) in case of bilateral accidents is that victims can take precautionary measures which are not always observable for judges and which can therefore not be fully accounted for in contributory or comparative negligence defences.[106] A limit on the compensation in case of bilateral accidents may therefore be useful in cases where victims should be given additional incentives to reduce the accident risk. Whether caps are efficient in specific bilateral accident cases will depend on the circumstances. The question arises – inter alia – whether exposing the victim to risk is indeed necessary to provide these additional incentives or whether the victim's incentives can be optimally controlled via the contributory negligence defence. Also the amount of the cap remains important. If the cap were set too low, this would give incentives to the victim but it could equally lead to serious under-deterrence of the injurer.

VI. Compensation

92 Again, the issue how efficient compensation for damage suffered by GMOs could be provided is an issue which could be discussed at length from a law and economics perspective. For instance already the question whether the GMO risk can be considered sufficiently foreseeable to consider this an insurable risk would already merit a separate study. Within the limited scope of this

[104] See *M. Faure*, Economic Models of Compensation for Damage Caused by Nuclear Accidents: Some Lessons for the Revision of the Paris and Vienna Conventions, [1995] *European Journal of Law and Economics* (EJLE) 21 43.

[105] The reason for the under deterrence is obviously the same as for the under deterrence which results from the insolvency of the injurer. Under deterrence arises because the injurer is not exposed to full liability, either as a result of his insolvency or as a result of a cap.

[106] This point has been made by *S. Rea*, Non pecuniary Loss and Breach of Contract, [1982] JLS, 50 52, but also by *M. Adams*, Warum kein Ersatz von Nichtvermögensschäden, in: *C. Ott/H.B. Schäfer* (eds.), Allokationseffizienz in der Rechtsordnung, 214; and by *C. Ott/H.B. Schäfer*, Schmerzensgeld bei Körperverletzungen. Eine ökonomische Analyse, [1990] JZ, 564 565. See also *M. Faure*, Compensation of Non pecuniary Loss: An Economic Perspective, in: *U. Magnus/J. Spier* (eds.), European Tort Law, Liber Amicorum for Helmut Koziol (2000) 143 159.

study we can only point at a few of the questions and issues that could be raised (also taking into account the questionnaire) in relation to the compensation of GMO damage.

1. Available insurance schemes

93 A first principle distinction which has to be made from an economic perspective is indeed the availability of a variety of different insurance schemes. Indeed, economists would hold that if a particular party has an aversion against certain risks, one way to increase his utility is by seeking *ex ante* protection through insurance. The mechanism is well-known: through the payment of a premium (which should at least be equal to the probability of the loss multiplied with the damage), the insured can *ex ante* seek security that in case an accident happens, a third party (the insurance company) will take over the loss. Provided that many similar persons seek this protection with an insurance company, an insurer can in principle bring together these non-correlated risks in segregated risk pools and spread the risks over the participants in the pool. Crucial in this respect is of course that the insurer has information on the GMO risk and that he can use this information to apply a correct risk differentiation (e.g. through appropriate policy and premium conditions).

94 Within the context of GMO damage in fact two different parties could seek insurance coverage. One possibility is that the potential injurer (the party handling GMOs) would seek insurance to cover the risk that he would be held liable as a consequence of his use of the GMO. This would then be a traditional liability insurance. It is also referred to as a third-party insurance since in fact the insurer covers the risk that this insured (the injurer) will have to compensate a third party (the victim). The alternative is obviously that the potential victim himself would seek protection against the damage he may suffer as a consequence of having his non-GM crop exposed to GMOs. If it is the potential victim who seeks this coverage, it is a so-called first-party insurance.

95 In a contract case, both insurance types are of course possible, depending upon the allocation of the risk. If parties agreed *ex ante* to make the seller liable, he may purchase a liability insurance. If on the other hand the buyer purchases at his own risk, he may seek first-party insurance to cover the risk of harm. The type of insurance chosen in a contract context could thus also provide an indication of the implicit agreement between the parties concerning the allocation of the risk.

96 In the tort case, the difference between the two insurance types is related to the difference between the two liability rules discussed above, strict liability and negligence. Since in a strict liability case the injurer will in principle always have to compensate the victim, it will be the injurer who seeks third-party liability insurance. Since the victim is in principle always compensated, he does not need to seek insurance protection. The reverse is true in case of negligence. Since negligence provides incentives to the injurer always to take the due care required in the legal system, the injurer will do so and will hence not be held

liable. The injurer therefore – in theory – does not need liability insurance[107] but the victim will under negligence in principle not be compensated and thus be confronted with the damage. The risk averse victim may therefore under negligence seek first-party insurance.

97 Economists are relatively enthusiastic concerning this first-party insurance and one can notice a tendency towards an increasing use of first-party insurances for instance also to cover environmental damage.[108] The underlying principle in a first-party insurance is that the insurance undertaking – in principle – pays as soon as damage occurs, provided that it can be proven that the particular damage has been caused by the insured risk. Payment by the insurance undertaking occurs irrespective of the fact whether there is liability. The arguments advanced in the literature in favour of first-party insurance are that the transaction costs would be lower and that risk differentiation might be a lot easier.[109] The reason is simply that with first-party insurance the insurer directly covers the risk of damage with a particular victim or a particular site. The idea is that it is therefore much easier for the insured to signal particular circumstances which may influence the risk to the insurer. The problem with liability insurance is that the insurer is always insuring the risk that his insured (the potential injurer) will harm a victim (a third party) of which the properties are unknown *ex ante* to the insurer. Moreover, under liability insurance there are many uncertainties, e.g. how the judge will interpret this specific liability of the insured. In the ideal world of first-party insurance the insurer directly covers the victim, i.e. the risk. He can therefore directly monitor the risk and in principle provide a much better risk differentiation. First-party insurance by the victim may thus be one potential instrument to provide compensation for losses.

2. Compulsory insurance

98 Another question is of course whether there is an economic argument to force a potentially liable GMO producer to seek insurance cover. This again is an issue that has received a lot of attention in the law and economics literature. We will of course not summarise all of this literature within the scope of this study, but merely state the most important argument in favour of compulsory insurance from an economic perspective.[110] The most important argument to introduce compulsory liability insurance relates to the insolvency problem. The argument goes that the magnitude of the harm will often exceed the individual wealth of an injurer, whereby a problem of under-compensation of victims will

[107] Except of course for the cases where either the injurer or the judge would commit errors as a result of which there still would be a liability case.

[108] See *M. Faure*, Environmental Damage Insurance in the Netherlands, *Environmental Liability* (2002) 31 41 and *M. Faure*, Environmental Damage Insurance in Theory and Practice, in: *T. Swanson* (ed.), An Introduction to the Law and Economics of Environmental Policy: Issues in Institutional Design (2002) 283 328.

[109] This argument is especially advanced by *G. Priest*, The Current Insurance Crisis and Modern Tort Law, [1987] Yale L.J., 1521 1590.

[110] For a more detailed discussion see *M. Faure*, Economic Criteria for Compulsory Insurance, [2006] *Geneva Papers on Risk and Insurance* (Geneva Pap Risk Ins) 31, 149 168.

arise. Lawyers would, hence, push forward compulsory insurance as an argument to guarantee an effective compensation to the victim.

99 It is, however, also possible to make an economic argument that insolvency will lead to under-deterrence problems which might be remedied through liability insurance. Indeed, this so-called "judgment-proof" problem has been extensively dealt with in the economic literature.[111] Insolvency may pose a problem of under-deterrence. If the expected damage largely exceeds the injurer's assets, the injurer will only have incentives to purchase liability insurance up to the amount of his own assets. He is indeed only exposed to the risk of losing his own assets in a liability suit. The judgment-proof problem may therefore lead to underinsurance and thus to under-deterrence. Jost has rightly pointed to the fact that in these circumstances of insolvency, compulsory insurance might provide better outcome.[112] By introducing a duty to purchase insurance coverage for the amount of the expected loss, better results will be obtained than with insolvency whereby the magnitude of the loss exceeds the injurer's assets.[113] In the latter case the injurer will indeed only consider the risk as one where he could at most lose his own assets and will set his standard of care accordingly. When he is, under a duty to insure, exposed to full liability the insurer will obviously have incentives to control the behaviour of the insured. Via the traditional instruments for the control of moral hazard the insurer can make sure that the injurer will take the necessary care to avoid an accident with the real magnitude of the loss. Thus Jost and Skogh argue that compulsory insurance can, provided that the moral hazard problem can be cured adequately, provide better results than under the judgment-proof problem.

100 Indeed, this economic argument shows that insolvency may cause potentially responsible parties to externalise harm: they may be engaged in activities which may cause harm which can largely exceed their assets. Without financial provisions these costs would be thrown on society and would hence be externalised instead of internalised. Such an internalisation can be reached if the insurer is able to control the behaviour of the insured. This shows that if the moral hazard problem can be cured adequately, insurance even leads to a higher deterrence than a situation without liability insurance and insolvency.

101 Notwithstanding this advantage of liability insurance, the literature has equally pointed at many dangers of compulsory insurance and has thus formulated several warnings. They can be summarised as follows:

[111] More particularly by *S. Shavell*, The Judgement Proof Problem, [1986] IRLE, 43 58.

[112] *P.J. Jost*, Limited Liability and the Requirement to Purchase Insurance, [1996] IRLE, 259 276. A similar argument has recently been formulated by *M. Polborn*, Mandatory Insurance and the Judgement Proof Problem, [1998] IRLE, 141 146 and by *G. Skogh*, Mandatory Insurance: Transaction Costs Analysis of Insurance, in: *B. Bouckaert/G. De Geest* (eds.), Encyclopedia of Law and Economics (2000) 521 537. Skogh has also pointed out that compulsory insurance may save on transaction cost.

[113] See also *H. Kunreuther/P. Freeman*, Insurability, Environmental Risks and the Law, in: *A. Heyes* (ed.), The Law and Economics of the Environment (2001) 316.

102 Compulsory insurance should only be introduced when there is a sufficient amount of supply of differentiated insurance policies on the market. This supposes that sufficient competition on insurance markets exists and that operators have the possibility to actually seek coverage.

103 Therefore, compulsory insurance should only be introduced when sufficient information is available with insurers on the particular risk that will be covered. If too little information is available on the risk, the risk might be uninsurable or the risk premium (to account for insurers' ambiguity) may be that high that the insured are not willing to pay that high a premium.

104 Information on the risk with insurers is also crucial since insurers need to be able to control the moral hazard problem through an appropriate risk differentiation.

105 Compulsory insurance should never be accompanied by a duty to accept on insurers. The possibility for an insurer to refuse cover to high risk individuals can be a socially desirable control of moral hazard.

106 If at all, a legislator should merely impose a duty to seek financial coverage, but should at the same time provide a lot of freedom to the market to choose the type of financial coverage which is desired. Hence, this can but should not necessarily be limited to insurance. Other alternatives could meet the financial security requirement as well.

3. Compensation funds

(a) Risk differentiation

107 A question that often comes up in relation to new risks, like GMO damage, is whether damage should be compensated through a compensation fund. The reason that a fund solution is sometimes advanced is that there may be problems with the coverage of this risk on traditional insurance markets. For instance, problems with the insurance of environmental damage were a reason for some to propose compensation funds for environmental damage. Nevertheless, in general there are not many reasons to believe that a compensation fund would be better able than insurance (if this were also available) to compensate for GMO damage. Moreover, it can be feared that precisely the reasons that may make GMO damage a "hard to insure" risk may also render it impossible to organize a fund in an efficient manner. Indeed, one crucial issue is that no matter whether one organizes compensation through a fund or through traditional insurance, some principles of risk differentiation always need to be respected. This means that a duty to contribute (to an insurer or to a fund) should in principle only rest upon the one who actually contributed to the risk. A second principle is that this duty to contribute should also be related to the amount in which the specific activity contributed to the risk. This principle is important since it will give operators incentives for prevention. Risk differen-

tiation means that bad risks will be punished (with a higher contribution) and good risks will be rewarded.

These principles are not only important from an efficiency point of view (providing optimal incentives for prevention), but also include a fairness element. Indeed, if these principles were not followed, it would mean that good risks would have to pay for the bad risks as well and would therefore in fact subsidise bad risks. This negative redistribution should be avoided and therefore the compensation mechanism, fund or insurance, should be financed principally by the ones who really contributed to the damage. 108

Thus, the compensation mechanism should aim at a differentiation of the contributions due. This differentiation is only possible if the insurance company or agency administering the fund also possesses information regarding the extent to which the specific activity contributed to the risk. One key element to determine the choice between insurance or funds is therefore who possesses the best information to control the risk. 109

(b) Funds versus insurance

Applying the principles discussed above, there are not many reasons why, if both are – in theory – available a compensation fund would provide better protection against insolvency than the private insurance markets. One could assume that an insurer is better able to differentiate risks since an insurer is specialised in risk differentiation and risk spreading. Insurers therefore possess techniques to determine in what way their insured contribute to the risk. Obviously this assumes that the insurance markets are competitive. In the absence of competition on insurance markets, either the supply of insurance coverage could be too limited or premiums could be excessively high, which could justify a preference for a compensation fund.[114] But if insurance markets are competitive, insurers can be assumed to be better able to deal with classic insurance problems such as moral hazard and adverse selection than the administrators of a compensation fund. One cannot see as a matter of principle why a government agency that would run a compensation fund would have better information on risks than an insurer. This might, however, be different if highly technical risks are involved where operators (e.g. producers of GMOs) are in a much better position than the insurance company to monitor each other. Some examples have been given above. This point has been made for instance concerning the compensation for nuclear damage. One could argue that a risk-sharing agreement between nuclear plant operators could lead to optimal monitoring between the operators since they possess much better information on prevention, good and bad risks than an insurance company would.[115] Also in maritime insurance the Protection and Indemnity Clubs, based on a mu- 110

[114] *M. Faure/R. Van den Bergh*, Restrictions of Competition on Insurance Markets and the Ap plicability of EC Anti Trust Law, [1995] *Kyklos*, 65 85.

[115] See *M. Faure/G. Skogh,* Compensation for Damages Caused by Nuclear Accidents: A Conven tion as Insurance, [1992] Geneva Pap Risk Ins, 499 513 and *M. Faure*, [1995] EJLE, 21 43.

tual risk sharing between tanker owners, play a crucial role.[116] With respect to these highly specialised matters one could therefore argue that the operators themselves might in some cases be better suited than an insurance company to control moral hazard since they are better able to process information on the particular risk.[117] However, the examples given show that with these risk sharing agreements no use is made of a government-run compensation fund.

111 To summarise, if both insurance and compensation funds are available there are no clear reasons why a fund would be the preferred solution. There may, however, be reasons why insurance may not provide coverage for certain risks. In that case, funds cannot be compared with insurance since insurance is no alternative. However, there are no reasons to assume *ex ante* that GMO damage would be uninsurable, provided sufficient information on the risk can be obtained.

(c) Costs

112 Comparing insurance with compensation funds one should also address the comparative costs of both instruments. Insurance will generally be cheaper because liability insurance policies are not concluded for one activity, but for a whole set of risks. There is hence one insurance policy with transaction costs that are incurred once and an administrative structure within an insurance company that will be forced to an adequate cost reduction by competitive pressures. The costs of risk spreading might also be lower with an insurance company than with a compensation fund. Insurers are indeed specialised in methods for acquiring information on differentiation of risks. In addition, it has been argued in the literature that insurance provides for a reduction of transaction costs between contracting parties, because parties can *ex ante* agree on a distribution of risks and losses in case of an incident.[118] The comparison will obviously also depend upon the type of compensation fund under discussion. In most cases one immediately thinks of a compensation fund run by a regulatory authority. If that is the case, one can of course refer to the literature on the negative effects of bureaucracies to argue that such a publicly operated compensation fund should not necessarily provide compensation at lower costs than the private insurance market. This can be reduced if the fund is administered privately, but in that case competition with other funds has to be organized to provide incentives for cost reduction.

113 Summarising, it seems more appropriate to use traditional liability and insurance as far as possible to cover damage and to use funds only in cases where insurance markets fail and there is reason to believe that funds would be able to provide adequate compensation.

[116] See *T.G. Coghlin*, Protection and Indemnity Clubs, [1984] *Lloyd's Maritime and Commercial Law Quarterly* (LMCLQ) 403 416.

[117] These 'joint compensation systems' are also discussed in the *Green Paper on Remedying Environmental Damage*.

[118] This argument has been made by *G. Skogh*, The Transactions Cost Theory of Insurance: Con tracting Impediments and Costs, [1989] *Journal of Risk and Insurance* (JR&I) 726 732.

VII. Cross-border issues

The questionnaire rightly also addresses the question what changes if the GMO damage occurred in a transboundary context. Of course one could easily think about examples for instance where there would be cultivation of a GM crop whereas the mixture would take place with non-GM crops in another country. 114

1. Conflict of law rules

First, one can briefly address how from an economic perspective conflict of law rules should address this type of transboundary damage. Although traditional handbooks in law and economics do not address conflict of law rules in any detail, the potential solution does not seem to be that complicated. Again, a distinction should be made between on the one hand the contract case and on the other hand the tort case. In a contract case parties can again negotiate *ex ante* on the applicable law and hence a choice of law regime will usually be agreed between the parties and next, enforced by the judge. 115

As far as the tort case is concerned from an economic perspective there should not necessarily be a preference for the application of the law of the state of the injurer rather than applying the law of the state of the victim. The most important issue is, however, that also in a transboundary context externalities may arise. Hence, the function of tort law in the transboundary context should again be the internalisation of externalities. The bottom-line should therefore be that the GMO producer in the injurer's state should be forced to take into account the damage suffered by the victim even if that takes place in another state. That result can be achieved as long as the victim has the possibility to bring a lawsuit against the injurer for the damage suffered, so that this internalisation can take place. Depending upon the legal system in some cases victims will be forced to bring the suit in the state of the injurer. Injurers are thus also liable for harm caused in a transboundary context. In other situations victims may have the possibility to file the suit in their own state whereby the judgment that is obtained can afterwards be executed in the other country. 116

Thus, if the victims can sue the injurers according to the place that is most suitable to provide full compensation, the difference in liability system among countries would not create serious problems for the victims. The same conclusion may also be drawn if we look at the incentive to internalise the damage. Consider for example two neighbouring countries, country A has a sub-optimal standard and country B has an optimal one. Suppose that the victim is a citizen of B, and the injurer is a citizen of A. If the victim can file the case either in A or B, the injurer will take an optimal level of care according to country B, otherwise he would be held liable[119]. 117

[119] This is not the case if the victim can only sue the injurer in the injurer's country. In this case, the injurer will only take a level of care that is enough for him to avoid liability, namely the less than optimal standard of his country (A). As a result, there will be too many activities in country A that may create externality in country B.

2. Harmonization?

118 Another question that always comes up when harm is caused in a transboundary context is whether there is any specific reason to harmonize legislation simply because the rules governing GMO liability might be different in various countries. A lot of literature exists on the question whether there should be harmonization of tort law from a law and economics perspective. That literature can of course not be even summarised within the context of this project, but the main results can of course apply to the GMO case as well.[120] The arguments for centralization of GMO liability are not particularly strong. One can compare the necessity to harmonize GMO liability with the question whether there should be harmonization of environmental liability in Europe.[121]

119 A *first* economic argument would be the transboundary character of an externality. However, as we just discussed, the mere fact that GMOs travel over borders is not necessarily an argument in favour of harmonization. The crucial question is whether the law can be used to remedy the transboundary externality. As we indicated above also an extraterritorial application of national law may solve this problem. Moreover, if the transboundary externality posed by transboundary GMOs would constitute an argument in favour of harmonization it would only be necessary to harmonize transboundary transport of GMOs, but there would not be a reason for a European-wide GMO liability regime.

120 Also the *second* economic reason, the race for the bottom, does not seem to be an issue in the case of GMO liability. It can hardly be expected that states would engage in destructive competition to attract industry to its country. It is very unlikely that such a race for the bottom would take place since states would damage their own interests by lowering standards of GMO liability. Since they would wish to protect their own voters it is more likely that states would engage in a race to the top. Only if there were empirical proof that states would engage in such a race for the bottom (showing that there would be actual relocation of industry as a result of differing liability regimes) would this constitute a reason for harmonization.

121 Also the *third* reason, harmonization of marketing conditions, has often been rejected by economists. Economists have rightly pointed at the fact that marketing conditions will always differ and that this is as such not a problem for the internal market. As long as products, services, capital, and persons can freely flow without obstacles the fact that legal rules differ does as such not constitute any obstacle to trade. Moreover, rules of civil liability like GMO liability do not constitute a serious impediment to transboundary trade.

[120] For a summary of this economic literature see inter alia *M. Faure*, How Law and Economics may Contribute to the Harmonization of Tort Law in Europe, in: *R. Zimmermann* (ed.), Grund strukturen des europäischen Deliktsrechts (2003) 31 82.

[121] See in that respect *M. Faure/K. Desmedt*, Harmonization of Environmental Liability Legisla tion in the European Union, in: *A. Marciano/J.-M. Josselin* (eds.), From Economic to Legal Competition. New Perspectives on Law and Institutions in Europe (2003) 45 86.

The *fourth* argument would be that a harmonization might reduce transaction costs. But as equally has been indicated in the literature, this argument often neglects the fact that differences often reflect differing preferences of the citizens and are thus not necessarily a bad thing. Moreover, the argument that uniform laws would lead to lower transactions costs neglects the fact that there are high costs as well in harmonization. Only if it were possible (e.g. through a bottom-up approach by the European Group on Tort Law) to identify the common roots in European legal systems could one argue that it may make sense to try to find this common denominator, provided that it is established that in fact it is only the legal form and technique that differs, but not the preferences of citizens. 122

In sum, this very brief overview of the economic arguments shows that the fact that there may be cross-border issues involved in transboundary GMOs is as such not an argument at all in favour of harmonization of GMO liability. 123

GMO Liability: Options for Insurers

Ina Ebert/Christian Lahnstein

I. Introduction

If a traditional farmer suffers a loss of income due to unwanted cross-pollination, insurance coverage of such a loss might theoretically involve different insurances of the affected parties, depending on the liability structure of such losses: the commercial third-party liability insurance of the GMO farmer, the product liability or recall insurance of his supplier, an agricultural insurance against material damage of the traditional farmer or, if the cross-pollination was only discovered after the genetically modified (GM) products had been passed on to customers, the product liability or recall insurance of the traditional farmer. However, determining the existence of coverage for each of these types of insurance is problematic for a variety of reasons. In addition to this, GMO cross-pollination losses are usually explicitly excluded from insurance coverage due to the incalculability of associated risks, particularly in countries with stringent liability laws governing GMO farmers that are independent of proof of causality. Two alternatives for settling such cross-pollination losses sustained by traditional farmers have been developed in practices parallel to insurance solutions: variously organised and financed compensation funds and also contractual constructions under which the seed producer obligates himself to buy any plants of farmers in the neighbourhood of the seed producer's customers affected by unwanted cross-pollination at the price of not genetically modified crops. In such cases, any need for insurance or options for insurers arise only insofar as some area not covered by these alternatives remains to be dealt with by liability law. This will mostly be the case where funds are activated or any purchase obligation arises only if the GMO farmer has adhered to all safety requirements or if the unwanted cross-pollination cannot be traced back to a specific GMO farmer. 1

If cross-pollination losses are to be covered by insurance, the question arises of the scope and terms and conditions under which such insurance protection can be granted. Apart from restricting insurance protection to certain types of plants and GMOs as well as agreement of monetary limits, consideration must primarily be given to setting safety standards for preventing unwanted cross-pollination. 2

II. Coverage of cross-pollination losses in individual classes of business

1. Commercial third-party liability insurances of GMO farmers

3 Since GMO farmers are in any case exposed to liability for unwanted cross-pollination, it would in principle be logical to have cross-pollination losses (at least also) be included under their commercial third-party liability insurance. Originally, the largest obstacle to this was the fact that the maximum sums insured for pure financial loss were frequently low, if it was included in the cover at all. Moreover, unwanted cross-pollination might also be regarded as environmental damage, in which case the wide variety of exclusions of non-sudden pollution contained in various forms in all commercial third-party liability insurance, would probably stand in the way of coverage. In the case of cross-pollination losses related to plant types where the cultivation of GM crops almost inevitably leads to cross-pollination, coverage would conceivably also be refused because of a lack of fortuitousness of a loss event, although this would depend on the structure of the insurance contract.

4 Particularly in countries that have stringent liability laws under which the GMO farmer's liability is independent of proof of causality, coverage of cross-pollination losses has however met with widespread doubt in the insurance industry, particularly in the wake of the first large recall campaigns resulting from unwanted cross-pollination. As a consequence of this, the cross-pollination risk is in some countries – for instance in Germany – considered to be uninsurable in the present legal environment and GMO-related losses are usually excluded from coverage. The most important point of criticism by the insurance industry here is the uncertainty of whether GMO farmers are only liable in the event that the legal limit of 0.9% is surpassed or also if the insured neighbouring traditional farmer has guaranteed his customers observance of lower threshold values by contract. This distinction is important, because, even if all conceivable safety standards are adhered to, it appears to be virtually impossible to avoid any trace of cross-pollination, at least in the case of commercial cultivation of GM crops. Another pre-condition for the insurability of the GMO farmer's liability would be the establishment of legal regulations for good professional practice (requiring the erection of barriers, separation of GM and traditional products in storage and transport, etc.).

2. Property insurances of traditional farmers

5 Even if the traditional farmer has agricultural insurance without any specific GMO exclusion, the loss of income due to unwanted cross-pollination will usually not be covered, since the coverage is limited to (named) natural hazards. Besides, at least as long as traditional farming is the rule and GMO farmers are the exception, it would also seem unfair to let the possible victim of unwanted cross-pollination pay for having the risk set by the GMO farmer covered by insurance.

3. Product liability and recall insurances of traditional farmers

If unwanted cross-pollination is not noticed before the traditional farmer has delivered his crops to customers, the product liability insurance of the traditional farmer could in principle be involved, if the farmer is liable for exposure due to cross-pollination under guarantees afforded to his customer. This of course presupposes that the insurance protection of the traditional farmer does include pure economic loss (if the national legal system considers the consequences of cross-pollination not as damage to property but as pure economic loss). With product liability insurances, this will frequently not be the case, since these insurances usually only cover losses to property and personal injury. 6

However, all the differences in the national legal systems concerning the classification of cross-pollination do not really matter in the end since more recent product liability policies for farmers usually have an explicit GMO exclusion. 7

4. Product liability and recall insurances of GMO seed producers

Coverage of cross-pollination losses under the product liability or recall insurance of the GMO seed producers is not likely to play a significant role, since the producer will as a rule not be held liable since his products are not defective and a voluntary recall appears to be improbable. A link to liability that might be covered under product liability or recall insurance of the seed producer might therefore only materialise from some violation of the seed producer's obligation to caution the GMO farmer about the risks related to the cultivation of GMO seeds and inform him about safety precautions. This however presupposes that the seed producer has insufficiently cautioned the GMO farmer and that such an obligation to caution exists under the respective legal system. 8

III. Alternatives and supplements to the insurance of cross-pollination losses

1. Fund solutions

Regardless of how they are organised and financed, funds can bear the liability in cases of unwanted cross-pollination, provided that they compensate for all financial disadvantages of the traditional farmers. They thus make both special liability regulations governing the consequences of cross-pollination that go beyond general liability law and insurance protection for such financial losses redundant. There is however no evidence of such a comprehensive fund having been established anywhere in Europe. Instead the concept of GMO funds is rather limited to supplementing the traditional liability system, particularly in Denmark and the Netherlands: They ultimately more or less indemnify only those traditional farmers who sustain losses, although no GMO farmer has violated existing protective regulations or because the unwanted cross-pollination cannot be traced back to a specific GMO farmer. In contrast to this, if causality or even a wrongful act on the part of the GMO farmer can be proven, cross- 9

pollination loss is still settled under liability law. This means that the options are the same for the commercial third-party liability insurer as in countries without funds.

2. The seed producer's purchase of products affected by cross-pollination

10 At least with certain plant types (e.g. maize), products which must be labelled as GM can be sold as cattle fodder without significant shortfalls in selling price. If, despite the adherence to established safety regulations, unwanted cross-pollination occurs, mass producers of GMO seeds therefore occasionally offer to buy the affected crop of the traditional farmer in the neighbourhood of the seed producer's customer for the price of non-GM crops (e.g. in Germany the Märka model of Monsanto). This concept is already being tested (in Germany since 2005), but has not yet progressed far beyond that stage (there are however plans to expand it).

11 Of course, such a solution is only viable for the seed producer if involuntary cross-pollination is rare, or, as in the case of maize, if there is only a small price discrepancy between GM and non-GM products.

12 Even under the most favourable legal and actual parameters, the buying up solution can therefore only help to solve the problems of indemnifying a small cross-section of traditional farmers for unwanted cross-pollination. Replacing liability law and liability insurance in this area on a large scale, however, does not seem possible, even for cases where the GMO farmer has not committed any wrongful act. Much less is a contractual obligation of the seed producer to buy up the crop of the traditional farmer in the event of unwanted cross-pollination suited to replace liability if the cross-pollination is due to a violation of legal safety requirements by the GMO farmer.

IV. Options for insurers in structuring the insurance of cross-pollination losses

13 In case insurers should decide to offer some form of insurance coverage for the consequences of unwanted cross-pollination, they have several options for structuring the offered protection: Apart from the possibility of agreeing upon certain maximum sums insured (event and annual aggregate limits, as well as deductibles), there is the question of which plant types and GMOs are to be included. In the past, the discussion of these options has essentially focused on maize and maybe potatoes. At present however more than 40 additional plant varieties are already being tested or at least planned for GM plant cultivation. Since the probability of unwanted cross-pollination differs greatly with each of these varieties, and, in some cases, cross-pollination even appears to be almost inevitable (e.g. with oilseed rape), it does not seem likely that one comprehensive insurance solution can be found for GMO crops. Finding a uniform insurance solution for all plant types seems virtually impossible.

14 On the other hand, similar to seed producers and the purchase model, insurers will have to impose well-defined rules of good professional practice in cultivating GM plants as a prerequisite for covering cross-pollination losses, at least where adequate state regulations are missing. This could for instance include provisions for erecting barriers between traditional and GM crops, cleaning agricultural machines used on fields of both varieties, as well as criteria for separating both types of products in storage and transport.

General Reports

Comparative Report

Bernhard A. Koch

I. Possible ways to allocate the risk

1. What risks are at stake?

(a) Potentially harmful causes

For the purpose of this study, the only harmful events that will be considered are the economic consequences of the involuntary admixture of GM crops with non-GM crops. This may occur in a variety of ways, from the very first stages of seed production to the delivery of the ultimate produce to the consumer. The seeds sold may already be impure, they may have commingled during production, processing, transportation or storage. So-called volunteer seeds may have survived on a field previously used for GM cultivation and sprout in the next season. GM and non-GM crops may have been mixed during planting, harvesting, drying, or on the way to storage or vendors, or while at one of those places along the chain of distribution. Pollen may have dispersed from a GM to a non-GM field, be it by wind, by insects or other animals. Contamination may have occurred at one point only or at several stages of the production.[1] Its likelihood "depends on several variables: the specific crop, its location, the presence of outcrossing wild relatives/sexually compatible crops, the competitive nature (advantages and disadvantages) of the introduced trait, and the environmental consequences of neutral traits."[2] 1

Human intervention may play a role, but not necessarily so. It is more likely, for example, during seed or crop handling, whereas transfer by natural forces or animals is typically not triggered by human conduct (if one disregards the 2

[1] Commission Recommendation of 23 July 2003 on guidelines for the development of nation al strategies and best practices to ensure the co existence of genetically modified crops with conventional and organic farming (http://ec.europa.eu/agriculture/publi/reports/coexistence2/guide_en.pdf) no. 2.2.2. See also *A. Nelson*, Legal Liability in the Wake of Starlink™: Who Pays in the End? 7 [2002] Drake Journal of Agricultural Law 241, 251 ff., on the various possibilities of crop contamination.

[2] *H. Daniell*, Molecular strategies for gene containment in transgenic crops, 20 [2002] Nature Biotechnology 581 (available at http://www.nature.com/nbt/journal/v20/n6/pdf/nbt0602 581.pdf).

farmer's choice to proceed with GM cultivation in the first place, of course). Nevertheless, omissions may at least have contributed also to the latter phenomena, for example if the GM farmer has disobeyed certain segregation measures. Even if human conduct was involved, however, it may or may not be considered improper according to recognized farming standards of the time.

3 As far as the cause is concerned, any intentional violation of segregation rules, in particular by way of sabotage, will be disregarded in the report. In such cases, all legal systems will provide for mechanisms in tort law to cover the ensuing losses, and these will typically be more victim-friendly than in cases of damage caused unintentionally.

4 Unproblematic from a tort law policy perspective are furthermore cases where someone along the GMO production chain has acted in violation of mandatory rules, e.g. by disobeying segregation requirements or by growing genetically modified species which have not (yet) been authorized for cultivation.[3] While such cases will still be considered in the report, it is clear from the outset that – again – traditional tort law rules will typically provide tools for victims who seek compensation: Most legal systems offer special protection to victims of a violation of some legal norm whose purpose (inter alia) it was to protect someone from harm, for example by reversing the burden of proving fault.[4] Nevertheless, one might wonder whether the position of the claimant in such cases could and should be improved by, say, lowering the standard of proof, or by reversing the burden of proving certain requirements of the claim.

(b) What losses are imaginable?

5 This study disregards personal injury resulting from GMOs as well as direct property damage such as harm to the crops as such. The latter may, however, be a precondition for the ensuing economic losses that are under survey here, in particular for their market value, which some jurisdictions consider to be damage to the crops themselves in an objective assessment of the overall loss. The focus of this study is therefore on the indirect consequences of involuntary admixture only, which affect the financial value (such as the marketability) of agricultural products. Further excluded is environmental harm as such, i.e. damage to biodiversity or any other losses that do not affect individuals, but society at large.

6 It is important to note, therefore, that potential losses in the core cases envisaged here are not as difficult to predict since there is less insecurity about the type or the extent of the possible harm. While harmful effects of genetically modified food, for example, should be ruled out for products that have under-

[3] Cf. Ireland no. 2: "[A]lthough the existence of the regulatory framework for GMOs does not provide a framework for liability, it is also clear that where these regulations have not been com plied with, both the government agency and the originator of the GMO may be liable for breach of statutory duty."

[4] See infra no. 55.

gone the risk assessment as part of the EU authorization procedure, the market values of GM and conventional agricultural products are both quantifiable data for any given point in time, and so the potential loss sufferable is the difference between the two, even though the former may be influenced by public opinion about GM products, which in turn is based upon an immeasurable assessment of the risks they may bring about to consumers. This may lead to a market value of zero (and therefore to a loss equalling the sales value of the conventional product)[5] in a case where a certain variety is not marketable if genetically modified, but that figure zero is a certainty for the particular product under the market conditions of the time. Furthermore, if one farmer starts to grow GM crops, the size of the neighbouring fields and their potential yield as well as their distance from the GM farmer are equally given facts. The only uncertainty with respect to the immediate economic losses of the neighbouring farmers remaining is the likelihood of admixture, but even there some data is already available with respect to certain crop varieties.

In such a narrow case scenario, the loss of the non-GM farmer may not be excessively high. After all, if her harvest needs to be labelled as genetically modified (which is the immediate consequence of admixture), she may still be able to sell it on the market for GM products. The assumption that there is such a market is not far-fetched:[6] After all, the farmer to whose fields the admixture can be traced back will not have started to grow GM crops unless it is (1) permitted to commercially cultivate them and (2) economically profitable for her, which not only presupposes that there is a market where she can sell these products, but also that the price is high enough to cover her (at least initially) higher production costs. Examples from Spain show that the price for GM and non-GM products may even be the same, so that part of the victim's damage may be close to or equalling nil. This does not mean that she has not suffered any loss since at least the costs of identifying the admixture as well as her efforts to re-label or re-market her now genetically modified products have to be taken into account in addition to the actual price difference (if any).[7] 7

However, the damage may be significant in other scenarios, not only for organic farmers whose losses are obviously not limited to the price difference in one given year.[8] Imagine that a feed producer is sued by all her customers for her failure 8

[5] See, e.g., United Kingdom no. 18. Cf. Art. 5 Sect. 1 2nd paragraph of the Walloon Draft Decree (infra 668 ff.): "If the harvest cannot be placed on the market because of admixture with geneti cally modified plants, the financial losses shall be taken as the market value of a similar harvest not labelled as containing GMOs, from which shall be deducted, where applicable, any type of benefit gained from this harvest, including use within the farm."

[6] DEFRA Consultation Paper (infra Annex 720 ff.) no. 139. But see *ibid.* no. 141: "[T]here may be circumstances in which there is no market for the GM equivalent (e.g. the non GM farmer may be growing sweetcorn maize while GM maize is only being grown as a forage crop and there is no market in which it is traded). The loss in this case would be the whole of the non GM or or ganic price that has to be foregone, as there is no GM market to sell into to mitigate the loss."

[7] DEFRA Consultation Paper (infra Annex 720 ff.) no. 146.

[8] Cf. *Ex parte Watson*, 10.7.1998, [1999] Env. L.R. 310, 315 (CA): "If cross pollination occurs, it will have a devastating effect upon the applicant's business, reputation and livelihood."

to provide GM-free products, which in turn has had a detrimental effect on the marketability of their own products. Or: A food producer may not discover the GM qualities of the raw materials until the final production stage, when the produce of all her suppliers has already been processed. The food producer suffers a substantial loss with respect to that particular lot of her total production, and she seeks recourse from the non-GM farmer whose crops were contaminated.[9] The latter in turn claims compensation from her neighbouring GM farmer, which will most likely be a lot more than in the standard case mentioned earlier.

9 Without prejudicing the outcome of the following scenario, a GM farmer (or whoever will be sued for the harmful consequences of unintended admixture) may face an even more substantial claim if an entire region suffers economic losses due to an impairment of its previous reputation as a GM-free zone. A single case of admixture on a single field within that region may lead to customer mistrust in the other farmers' claims of cultivating conventionally, even if their own fields have not been contaminated at all in reality.

10 An important issue will therefore be where to draw the line between compensable and non-compensable losses. Unlimited indemnification of each and every imaginable loss of even the remotest third party is unthinkable.

11 This also relates to an important separate category of losses: the costs of identifying a loss in the first place. While this may be unproblematic in cases where admixture has actually occurred, shall a conventional farmer whose customers suspect that her production was contaminated by pollen from her neighbouring GM farmer be left with the entire (and often quite substantial) costs of testing her crops if the customer fear (which may deter them from buying before their suspicion is refuted) turns out to be unsubstantiated?

2. Who shall bear the loss?

(a) Starting point

12 Once admixture has occurred, the farmer whose fields are concerned is the first to suffer a loss under the conditions just mentioned. The key question is, of course, whether she shall be left with that loss, or whether she will be able to recover at least part of it from someone else. This is not just a rhetorical question: After all, the basic norm underlying all compensation schemes (though unfortunately mostly forgotten today) is that the loss at least initially lies where it falls. It is only shifted to someone else if there is a good reason to do so. The occurrence of the loss as such is never sufficient justification in itself.

[9] Cf. the "Terra Prima" case, a producer of organic tortilla chips that had to destroy 87,000 packages thereof when it turned out that the maize field of its supplier had been contaminated by cross pollination from a nearby Bt maize field. As stated by a Terra Prima executive, this had been "a financial disaster" for the company (see the minutes of a U.S. Food and Drug Administration's hearing at http://www.fda.gov/ohrms/dockets/dockets/99n4282/99n 4282 tr00003.rtf). The chips producer chose not to sue the farmer, however.

(b) The immediate victim as the ultimate loss bearer

A very simple response to the cases under survey here may therefore be a complete denial of compensation to the victim. This sounds harsh and contrary to that farmer's free choice to grow conventional or organic crops. 13

One should also consider that GMO admixture is certainly not the only real-life scenario imaginable where a farmer may suffer the same or even more damage without being able to pass it on to someone else, for example in the course of natural catastrophes[10] or, seemingly less dramatic, but certainly just as detrimental, changes in customer preferences. 14

The immediate victim may not be able to shift her losses despite the fact even that some special compensation regime may apply: Its prerequisites simply may not be fulfilled or may be impossible for the victim to prove. This is of course more likely if traditional tort law applies, but there is by definition no indemnification scheme imaginable which pays out monies without any further concern of the applicant's position. 15

One therefore needs to bear in mind that under any option presented in the report, at least some victims may not collect compensation at the end of the day. 16

(c) Minimum standards for any loss allocation scheme

Any loss allocation scheme will have to fulfil certain minimum standards. Only the most important ones shall be listed in the following bullet points: 17

- The ultimate goal of any regime is a fair distribution of risk – advantages and disadvantages of producer behaviour have to be taken into account as well as other aspects of a more general nature. If co-existence is the political goal, it can only be put into action if both GM and conventional farmers have an even chance to choose between their alternative ways of cultivation. This cannot mean, however, that one may produce at the expense of the other. Where the balance lies has to be defined by policy-makers. Law can only implement such choices by offering the proper tools. 18

- No matter what kind of regime one chooses, it has to be easy to handle. The more complicated the requirements for finding a solution, the less likely the regime will survive in practice. As a minimum, all elements of a potential claim have to be clearly defined. 19

- Access to the scheme is of paramount importance. Claims should not be denied (or discouraged) merely because they are too complicated to apply. The procedure to obtain compensation must be apt to handle the volume of potential claims in the best possible way, but at the same time allow for 20

[10] See also infra no. 151 152.

a thorough analysis of the matter: The decision-making process should be time-efficient, but not a quick shot.

21 • A connected matter is costs of the scheme: This is not about the amounts actually paid out in compensation, but rather the administrative costs of the regime – attorneys, judges, civil servants in the administration handling claims and the like. The more complicated and/or time-consuming the set-up of the system is, the more costly it will be to administer. The higher the costs, the more likely potential applicants will be deterred from filing their claims.

22 • Even if a scheme theoretically allows a claim for compensation, the victim ultimately may not collect money on that basis, for example because the defendant in a tort suit is bankrupt, or if a compensation fund is empty. This needs to be kept in mind at least when setting up a suitable regime. One way to address the problem would be to require advance cover for future losses, or – in the case of funds – consider backup guarantees of whatever kind.

3. The classic route: tort law

(a) General considerations

23 The classic way to award compensation for detriments of the kind envisaged here is tort law. It is undoubtedly a concept generally accepted in society, not only in light of its strong roots in history, but also since it corresponds to very basic notions of corrective justice, at least in its core.[11] It is essential, however, to keep in mind the functions of this body of the law, which determines its potential to solve the kinds of cases under survey here.

24 Tort law offers a response to unwanted consequences of certain events, its primary function is therefore not to prevent them.[12] This is predominantly left to other areas of the law, for example to administrative law, which regulates and pre-defines, for example, the conduct expected from all members of society. While it is clear that the threat of having to compensate losses one may cause might influence the behaviour of an individual and therefore contribute to the prevention of unwanted conduct, this is more of an effect of tort law than a dominant factor in shaping its rules.[13]

25 Nevertheless, a particularly harsh regime of liability linked to certain activities may deter individuals altogether, particularly if these activities are based upon an advance economic assessment of their pros and cons, as is typically (or at

[11] On these theoretical foundations, see e.g. *G. Schwartz*, Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice, 75 (1997) Texas Law Review 1801.

[12] *P. Widmer*, How Tort Law Deals With Apprenticeship in Sorcery, in: *MunichRe* (ed.), 5th International Liability Forum Munich (2001) 90, 92, who rightly emphasizes that "in respect of the damaging event, tort law always comes too late".

[13] See also Art. 10:101 PETL. But see the approach taken by the economic analysis of law, whose starting point is the preventive effect of liability rules: *M. Faure/A. Wibisana*, Economic Analysis (supra 532, 536 ff.) no. 4, 12 ff.

least should be) the case in any business activity. A very rigid and unlimited duty to compensate all and any losses resulting from GM farming, for example, may lead those potentially interested in this technology not to further consider pursuing it. Needless to say, this may have often been in the back of the heads of the legislators and illustrates their attitude towards regulating GM agriculture altogether. In the absence of further legitimate and recognized reasons, however, it is rather an abuse of tort law's concepts to turn mere effects into functions, as it evidences flaws in regulating behaviour in its proper legislative place.

Before looking at some of the key aspects of the various options tort law may offer claimants, it is important to note from the outset that this study can only offer just that – it is by no means a comprehensive overview of tort law in Europe, but focuses on those aspects which either seem to be dealt with differently in the jurisdictions under survey, or which should be of particular concern for an imaginary legislator who wants to redesign liability for GMOs. The focus will be primarily on claims against a neighbouring GM farmer at first; other possible defendants will be addressed in a separate sub-section (infra (i)). 26

(b) Requirements for tort law claims in general

Tort law, at least in its historic core, is assumed to be a predictable route to compensation. This is only true, however, if and to the extent the requirements for a particular claim are well-defined. The broader the terms used, the more open the inherent concepts are, the less likely will one be able to really predict the outcome of an individual case, at least as long as court practice is missing.[14] Defining the requirements for compensation is therefore a crucial task for tort law legislators. Despite (or maybe because of) that, tort law tends to define the conditions for awarding compensation narrower than other regimes. 27

Before addressing the most basic elements of a tort claim with an eye to how they may be applied in the cases envisaged by this study, it is important to keep in mind that procedural law and practice place further obstacles in tort claimants' path to indemnification. Civil procedure can be cumbersome and time-consuming, which in turn tends to trigger fairly substantial costs for litigants along the way to collect their claims. Even if these should be awarded to successful claimants in the end, they may not receive any payments at all if the defendant holds insufficient funds to pay her dues, so the insolvency risk mentioned above[15] is not addressed at all by tort law. 28

(c) Damage

Already, the first problem is the loss itself as seen through the eyes of tort law: Is the detriment that the non-GM farmer has suffered really compensable, or, 29

[14] Cf., e.g., the rather disillusioned statement in the DEFRA Consultation Paper (infra Annex 720 ff.) no. 137: "The application of the common law of negligence or private nuisance to GM cross pollination is untested and uncertain."

[15] Supra no. 22.

in other words, is the loss which undisputedly has occurred recognized as a violation of an interest that tort law shall protect?

30 The question in itself already indicates that tort law does not indemnify all interferences with a claimant's sphere:[16] This might otherwise lead to excessive claims, not only of the immediate victim, but also of merely remotely affected third parties. "Obviously, liability has to stop at some point."[17] If we take a standard case of our study, unlimited recognition of all detriments arising from GMO admixture may not only provide compensation to the farmer for her economic loss, but also, say, for the sentimental value of her crops, for her emotional distress experienced throughout the duration of the case, for the time she may have spent in explaining the problem to her family, and the like. Neighbours may be allowed to sue for the loss of enjoyment of looking at a GM-free field. Customers of the farmer may bring actions not only for the latter's failure to deliver products as contracted for, but also for the anger about the (temporary) loss of a previously reliable farmer, and so on. Needless to say, while these may be actual problems, tort law cannot take note of such concerns: "The law of delict would ruin itself, the people governed by it, and consequently the legal system assigned to it."[18]

31 Where to draw the line is of course a crucial question, and there is certainly no self-evident reply thereto. As a rule of thumb, one may say that the higher the value of an affected interest as defined by the legal system as a whole, the more likely also that tort law will offer tools to victims who seek compensation, but the reverse is equally true.[19]

32 It is undisputed in any jurisdiction that human physical integrity is of the highest value, so that bodily injury will typically qualify as a compensable loss under the further conditions of a tort claim (though not without exception, as certain minimal interferences such as stepping on somebody's toes will most often not lead to a tort claim). At the other end of the range of legally protected interests are, for example, pure economic interests, and many jurisdictions are reluctant to award compensation in tort law[20] for the mere reduction of an economic value as such.

33 "There is no consensus on the exact content of the phenomenon of 'pure economic loss'".[21] However, it is common understanding in many,[22] but certainly

[16] E.g. Cyprus no. 73 74.
[17] Finland no. 33.
[18] *Ch. von Bar*, The Common European Law of Torts II (2000) no. 1.
[19] *H. Koziol* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 2:102 no. 1 ff.
[20] Other parts of the law may offer claims, however, in particular contract law.
[21] *W. van Boom*, Pure Economic Loss A Comparative Perspective, in: *W. van Boom/H. Koziol/ Ch. Witting* (eds.), Pure Economic Loss (2004) 1 (no. 5).
[22] Austria no. 43; Cyprus no. 92 ff., 98; Finland no. 23; Ireland no. 53; Norway no. 36 38; Poland no. 33; Portugal no. 54; Sweden no. 29 ff.; Switzerland no. 44, 49; United Kingdom no. 54.

not all jurisdictions[23] that this is an additional category to be separated from the immediate consequences of bodily injury or damage to tangible things, even though this demarcation is imperfect inasmuch as indirect financial consequences triggered by such direct losses may also fall under the notion of "pure" economic loss, at least if they are experienced by third parties separate from the immediate victim (such as the loss of revenues of an opera house whose star singer is injured in a car accident).

34 The difference between pure economic loss and consequential loss linked to other (directly caused) harm such as personal injury or property damage is sometimes hard to tell.[24] It is often in itself rather a grey area than a clear-cut dividing line. With respect to the kinds of losses under survey here, one may argue that the economic loss of the conventional farmer was but an addition to the harm caused to her crops or land and therefore to be included in the calculation of the overall loss to that property. On the other hand, that in itself may be disputed as the admixture as such may not be considered to qualify as a "damage" to the field or to its fruits,[25] particularly if the economic performance of the genetically modified variety is better than its conventional counterpart. Some jurisdictions, however, use the test of whether an object has been physically changed (for better or worse) before the economic loss ensued, in which case the latter is considered to be a mere consequence of the former rather than a "pure" economic loss.[26]

35 A legal system may decide to award damages only if GM crops were actually mixed with conventional ones, but not for the mere fear thereof. The farmer whose suspicious customers no longer believe her GM-free label despite the fact that it is indeed true indisputably suffers an economic loss because her sales will drop. Is mere fear of admixture also recognized as a basis for a tort claim? Such loss would typically be deemed purely economic (and already for that reason be considered with the corresponding degree of reluctance by some jurisdictions), as it was not triggered by any actual harm to property. One could argue, though, that any reduction of the market price (even if caused by unreasonable consumer fears) already constitutes damage to the crops themselves if their value is to be assessed objectively. Some countries at least would not exclude compensating such a

[23] Pure economic loss is not seen as a separate category with an impact on recoverability, for example, in Belgium no. 38; Denmark no. 45; France no. 31; Hungary no. 30; Lithuania no. 20; Luxembourg no. 43; the Netherlands no. 6, 36; Slovenia no. 40; and Spain no. 27 28.

[24] *Ch. von Bar* (fn. 18) no. 25 ff. See in particular the discussion of the Canadian case *Hoffmann v. Monsanto*, which held the loss in question to be purely economic, in United Kingdom no. 36.

[25] Cf. *M. Brülhart*, Gentechnik und Haftpflicht (2003) 162 fn. 612; Portugal no. 2.

[26] Cf. *Ch. von Bar* (fn. 18) no. 32. See also the German case cited there (at fn. 175): A fish farmer could not sell his trout for a certain period of time because the feed that he had used was en riched with broad range antibiotics, of which he was unaware. The German Federal Supreme Court acknowledged the claimant's losses as damage to property despite the fact that the fish were not actually harmed from a veterinarian point of view he simply could not sell them and derive profits therefrom (BGH 25.10.1998 BGHZ 105, 346).

loss, for example,[27] whereas a claim based on mere fear by customers would most likely fail in others.[28]

36 Some jurisdictions refuse to acknowledge a certain smaller loss as compensable by pointing at the traditional principle that *de minimis non curat praetor*.[29] This may come into play if, say, only a handful of GM seeds find their way to the borderlines of the adjoining property of which even fewer self-sow there without mixing with the crops that are used for commercial cultivation.

(d) Causation

(i) The need for a factual link between the loss and the defendant

37 If a damage is deemed compensable under tort law, a defendant will only have to indemnify it if something happened within her sphere that caused the loss or at least contributed thereto in a legally recognized way.

38 Causation therefore links the loss of the claimant to the actual defendant, which is a necessary requirement before proceeding to consider further requirements of the tort claim. A GM farmer consequently goes free if the admixture was the result of impurities of the seeds that the claimant herself had bought, or if it was caused by shared harvesting machinery that had not been cleaned properly.[30] If that was the duty of the GM farmer herself who happened to have used that equipment just before her neighbour, she may be held liable for not cleaning the machinery as required, but not for growing GM crops as such, which in the normal course of events would not have spread to her neighbour's fields (because they were too far away, for example).

(ii) Conditio sine qua non and exceptions thereto

39 The most basic test is asking whether the damage would still have occurred if the activity or event to which the defendant can be linked had not taken place (the so-called *conditio sine qua non* or "but-for" test).[31]

[27] Denmark no. 46; Estonia no. 32; Hungary no. 37 38 (but probably too remote); Lithuania no. 21; the Netherlands no. 37; Poland no. 37 ff.; Slovakia no. 33; Sweden no. 35.

[28] Austria no. 15; Cyprus no. 97; the Czech Republic no. 61 63; England no. 37, 57; Finland no. 26 ff.; France no. 32; Germany no. 19; Italy no. 23; Latvia no. 12; Luxembourg no. 44; Norway no. 40; Portugal no. 57, 60; Switzerland no. 48 50. See also Belgium no. 41 ff.; Spain no. 70: recovery at least doubtful. Cf. DEFRA Consultation Paper (infra Annex 720 ff.) no. 148.

[29] Cf. *Ch. von Bar* (fn. 18) no. 12. See, e.g., Cyprus no. 74; Finland no. 22; Sweden no. 33 (gener ally uncommon, but part of the liability regime under the Environmental Code with respect to pure economic loss).

[30] Cf. http://www.pioneer.com/CMRoot/Pioneer/biotech/images/genetic_purity.pdf.

[31] E.g. Belgium no. 11; Cyprus no. 20; Czech Republic no. 19 ff.; Denmark no. 37; Estonia no. 9; France no. 15; Hungary no. 10; Ireland no. 3; the Netherlands no. 7, 22; Norway no. 23; Poland no. 13; Slovakia no. 9; Slovenia no. 29; Spain no. 48; United Kingdom no. 46. But see Sweden no. 8 on the absence of a general concept corresponding to *conditio sine qua non*: "The approach of the Swedish courts could probably best be described as pragmatic and the courts seem not to have felt any need for a general theory of causation."

All jurisdictions allow for deviations from that rule in certain special fact settings, for example in cases of multiple possible causes. If the conventional farmer whose crops were contaminated was surrounded by GM farmers who all grew the variant in question, the latter are not off the hook just by claiming that it may have been seeds or pollen from any other GM farmer rather than their own which were transferred to the conventional farmer's field. This may be a case of alternative causation, if it is clear that the GMOs came from only one field, but it cannot be specified which one of several neighbours owned the actual source. More likely in the GMO scenario are cases of concurrent causation, where pollen or seed from all surrounding GM fields were spread onto the conventional farmer's land, but the admixture would have occurred if there had been only one – and no matter which – neighbour who cultivated GM crops. 40

The majority of European legal systems, but not all,[32] provide for joint and several liability of all those GM farmers from whom the admixture may have originated in a way which would trigger liability.[33] In such cases, they are, however, only liable for "hypothetical causation" as their actual share – if any – in bringing about the loss remains uncertain.[34] 41

These cases get more complicated if the GM farmers are only held liable if they have to account for faulty behaviour within their sphere. In contrast to strict liability cases, where it makes no difference why the GM pollen spread from the defendant's onto the conventional farmer's field (though maybe subject to defences),[35] the cause in a fault case that needs to be looked at is the conduct that violates the required standard of care, not the admixture as such, which is only a starting point for establishing causation. 42

If there are additional factors that at least may have contributed to the admixture, but which no-one is to blame for (such as the forces of nature, unusual weather conditions or seed translocation by wild animals), this conflict of possible causes may lead to a different outcome: In most jurisdictions, hazards and other events that cannot be causally linked to someone else who might be liable have to be clearly ruled out as an alternative cause.[36] This all-or-nothing 43

[32] United Kingdom no. 49: If liability at all, it will only be proportionate to the extent of each defend ant's contribution to the risk. See also Czech Republic no. 34; Estonia no. 14 (proportional to the probability of causation); Norway no. 26 ff.; Portugal no. 37; Switzerland no. 24 (traditionally no liability, modern doctrine in favour of either proportionate or joint and several liability).

[33] E.g. Austria no. 8 9, 35; Belgium no. 16; Cyprus no. 32; Denmark no. 39; Finland no.13; France no. 20 (though subject to reservations); Germany no. 10; Greece no. 56 ff.; Hungary no. 18 19; Ireland no. 17; Latvia no. 7; Lithuania no. 10; the Netherlands no. 16; Norway no. 9; Slovenia no. 29; Spain no. 53; Switzerland no. 24 25 (for cases of cumulative causation, see also fn. 32). See generally *H. Koziol*, Comparative Report, in: *B. Winiger/H. Koziol/R. Zimmermann/B.A. Koch* (eds.), Digest of European Tort Law I: Essential Cases on Natural Causation (2007, in the following: Digest I) 6a/29 no. 1 ff.; *B.A. Koch*, Comparative Report, Digest I, 7/29 no. 4 5.

[34] See also *J. Spier*, Comparative Conclusions on Causation, in: *J. Spier* (ed.), Unification of Tort Law: Causation (2000) 127.

[35] See infra no. 57 ff.

[36] *H. Koziol*, Comparative Report, in: Digest I (supra fn. 33) 6b/29 no. 3.

approach negates liability of a potential tortfeasor if the likelihood that the cause originated within her sphere is below the required degree of probability.[37] Some jurisdictions are open towards a more balanced approach, however, at least under certain conditions.[38]

44 Even more disagreement can be found in cases of successive events where each would have sufficed to cause the whole loss at stake. If, for example, farmer A starts with GM cultivation before farmer B and admixture occurs while only pollen from field A are spread, jurisdictions are divided whether to proceed only with the case against farmer A, or whether the pollen which originated from field B, though at a later point in time, should also be taken into account, which may lead to joint and several liability of A and B.[39]

(iii) Proof of causation

45 The more complicated cases get, the more crucial it is to determine who has to prove causation. Again, it is generally the claimant who needs to convince the court that all requirements of her claim are met.[40] Nevertheless, there may be exceptions to that standard rule, as can often be seen in the area of environmental liability, for example, and in allowing or denying such exceptions, or by lowering or raising the level of certainty that the claimant's proof has to reach, jurisdictions may significantly influence the outcome of the case, in particular in scenarios such as the ones under survey here.

46 Some jurisdictions require that the evidence brought forward by the claimant needs to establish with almost certainty that her assertions are true.[41] Others are content with a "more likely than not" approach,[42] so if the judge is convinced there is a 51% probability that the facts speak for the claimant, the latter will succeed on the causation issue. These two extremes are not always spelled out in the fact-finder's wording, as evaluating the evidence is in her hands, which leaves a certain degree of flexibility in allotting percentages to the likelihood of the claimant's factual allegations. Some jurisdictions also generally lower the standard of proof in certain cases, for example if the defendant has acted with a qualified degree of fault such as gross negligence or even intent.[43]

47 There are some tools that judges may use in order to effectively help the claimant on the way to prove her case. In cases where the evidence is entirely in

[37] See infra no. 45 ff.
[38] *H. Koziol*, Comparative Report, in: Digest I (fn. 33) 6b/29 no. 4 ff.
[39] *B.A. Koch*, Comparative Report, in: Digest I (fn. 33) 8a/29 no. 2 ff.
[40] E.g. Czech Republic no. 27; Denmark no. 38.
[41] Cf. Austria no. 6; Belgium no. 15 ("very high degree of likelihood"); France no. 16 19 (flexible approach from certainty to high probability).
[42] Cyprus no. 19; Ireland no. 10; Norway no. 11; United Kingdom no. 49. Cf. Finland no. 11 ("clearly over 50 percent"); Switzerland no. 19. Cf. Sweden no. 11 ("higher than the 'more likely than not' standard, but lower than the 'beyond a reasonable doubt' standard").
[43] E.g. Denmark no. 38. See also Sweden no. 12 (two or more possible causes).

the defendant's hands, for example, some jurisdictions conclude that the latter should bring it forward.[44]

48 A typical tool to alleviate the burden of proving causation is to acknowledge *prima facie* evidence, which may be the case if some given facts are typically the result of a certain course of events: Even if the latter cannot be proven in all detail, the mere presence of the characteristic result indicates that these events probably have taken place.[45] The defendant can hold against that if she sufficiently raises doubts against that assumption by bringing forward evidence which suggest that another set of facts may also have triggered the same result (though she need not prove that this was in fact the case). *Prima facie* evidence is often acknowledged if a statutory rule has been violated which was designed to prevent a certain loss: If such a loss has indeed occurred and the defendant's conduct was in violation of that provision, the causal link between the one and the other is presumed.

49 If causation is presumed, however, the claimant only needs to prove the requirements for that presumption, which can be rebutted by the defendant if she indeed proves the contrary, whereas raising doubts does not suffice.[46]

50 If the burden of proving causation is shifted entirely onto the defendant, the claimant need not submit any evidence in support of her allegations other than the starting point, i.e. the occurrence of her loss. It is then up to the defendant to prove the absence of a causal link leading into her sphere.[47]

(iv) Adequate causation

51 Even if the claimant has proven that the neighbouring farmer has set a *conditio sine qua non* for the admixture, the latter may still not be liable in tort if the causal connection from a normative perspective is so weak that it could only be established under highly extraordinary circumstances and was not to be reasonably expected. There are various ways to formulate this concept which cushions the most extreme results of the but-for test (remoteness, unforeseeability, indirectness, adequacy, …),[48] but at the end of the day, almost all European jurisdictions (with the exception of Belgium[49]) allow for some limits to avoid unduly harsh results brought about by the affirmative answer to the *conditio sine qua non* test (so-called "legal" or "adequate" causation).[50]

[44] See, e.g., the Netherlands no. 13; Spain no. 52.

[45] Austria no. 35; Cyprus no. 24; Germany no. 9, 44; Portugal no. 33. Cf. Greece no. 54; Hungary no. 14; Ireland no. 11.

[46] Austria no. 7, 29; Latvia no 7; the Netherlands no. 14; Poland no. 19; Spain no. 18, 52.

[47] E.g. Norway no. 25 (discretion of the judge). Maltese law "does not envisage any circumstances where there might be a reversal of the burden of proof", however: Malta no. 9.

[48] Cf. *Ch. von Bar* (fn. 18) no. 448 ff.

[49] Belgium no. 11, but see no. 12 13, 32, 45 ff.

[50] *J. Spier* (fn. 34) 130 ff. See, e.g., Cyprus no. 20; Czech Republic no. 22; Estonia no. 9; Finland no. 10; Hungary no. 10 ff.; Ireland no. 5 9; Luxembourg no. 13; the Netherlands no. 8 ff.; Nor way no. 24; Poland no. 12 ff.; Portugal no. 28; Spain no. 50. Cf. Sweden no. 8 9 ("necessary and sufficient conditions").

52 If cross-pollination, for example, was completely unusual in a particular case and not to be expected in the eyes of science looking at the actual circumstances, e.g. because of an extraordinary distance between the fields concerned, the owner of the GM field from where the pollen undoubtedly came may be able to avoid liability in tort for lack of "legal" causation, even though she has set a cause in fact. Mere lack of certainty, however, does not suffice per se to successfully escape liability under this heading.

(e) Bases of liability

53 If it is clearly established that a farmer has suffered a compensable loss caused by GM crops that spread from the adjoining land, do we really see enough reason to hold that neighbour liable simply for the fact that she is in charge of the cause? Or do we require some sort of wrongdoing on her side, for example failure to observe mandatory segregation measures? The core of this problem concerns the classic choice between fault and no-fault liability.[51]

(i) Fault

54 Traditional tort law is built upon the notion of remedying a harm that was caused by legally unacceptable behaviour committed by someone who could have adhered to the required standard of conduct, but failed to do so. However, this classic notion of fault is moving away from the ancient perception of individual blameworthiness towards a more objective view which focuses on the average rather than the actual person under the circumstances of the case, though one often has the impression that even an ordinary person could not have come up to the standard that is imposed upon her ex post by the judge. This development is at least supported by the fact that technology has long expanded the individual capabilities of each person to act beyond one's own personal faculties.[52]

55 This is just one indication of a general shift throughout Europe from fault liability towards a more objective duty to compensate the unwanted consequences of one's conduct.[53] The next step along that trail would be a reversal of the burden of proving fault, and many European jurisdictions have already followed that route, some only in cases of professional misconduct, others irrespective of such a limitation.[54] Depending on how far a jurisdiction has already

[51] In the following, the element of wrongfulness will be disregarded even though many European jurisdictions regard this as one additional (and separate) requirement of a tort claim. See generally the overview by *H. Koziol* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Introduction to Chapter 2, no. 2 ff.; and *id*., Conclusions, in: *H. Koziol* (ed.), Unification of Tort Law: Wrongfulness (1998) 129.

[52] Cf. *M. Brülhart* (supra fn. 25) 120.

[53] *P. Widmer* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Introduction to Chapter 4, no. 3. See, e.g., the Dutch report, explaining that "tortious liability is incurred not only in a case of subjective fault, but also in a case of objective 'answerability'" (Netherlands no. 4). See also Spain no. 59; Portugal no. 98.

[54] Bulgaria, Czech Republic no. 12; Estonia no. 11, 17; Finland no. 54; Hungary no. 20; Latvia no. 8; Lithuania no. 11; Slovenia no. 28, 31, 34; Spain no. 59.

moved on that path, it is more or less likely that the claimant will succeed in establishing this essential element of her claim.

Almost all countries are in accord, however, that if they have prescribed a certain conduct specifically by law in order to avoid the infliction of harm, any violation thereof will generally per se be considered to be faulty unless the defendant can prove that no reasonable person could have adhered to that standard under the circumstances.[55] Any prescription of certain farming practice with respect to GMOs will be considered to fall under this category of "protective norms" inasmuch as they serve to prevent the adventitious presence of GMOs in conventional crops. So if a GM farmer does not abide by the distance limits or fails to observe other measures foreseen by law, it is up to her to prove that she was not thereby at fault. 56

(ii) Strict liability

- Strict liability in general

In contrast to its fault-centred counterpart that is historically rooted in the idea of personal blameworthiness (though it has long departed from there in the meantime), strict liability overcomes the need to search for an individual behaviour as the trigger for liability. Instead, it is based upon the idea "that responsibility has to be assumed as a counterpart of the privilege to create (and maintain) a situation of increased risk."[56] Strict liability attaches to risks which are triggered by certain objects or activities whose use or pursuance is permitted by law even though their potential for harm is at least presumed. Should the risk materialize, the person who takes advantage of the dangerous object or activity must in exchange for it being admissible compensate any losses that it causes (*cuius commodum, eius et incommoda*). 57

Apart from unavoidable diversity with respect to details, differences within Europe as regards fault liability primarily concern its readiness for deviations from its historic core, without negating the latter as such. When it comes to strict liability, however, even its fundamental acceptance varies throughout Europe. While England, for example, tries to avoid it to the extent possible, foreseeing only rare instances thereof in rather narrow case settings,[57] continental European jurisdictions are much more willing to introduce instances of liability without fault. However, they thereby rely on a piece-meal technique 58

[55] E.g., Austria no. 39; Belgium no. 6, 21; Denmark no. 40; Luxembourg no. 28; Malta no. 14; Norway no. 31; Portugal no. 22, 101. But see Sweden no. 22 23: The violation of a rule of conduct per se may not be regarded as negligent, but there would be a "very strong case for negligence" if "clearly established statutory rules defining the required conduct for GMO agri culture" had been infringed.

[56] *P. Widmer* (fn. 53) Art. 4:101 no. 2. See *M. Faure/A. Wibisana*, Economic Analysis (supra 538 ff.) no. 17 ff., on economic arguments applying to strict liability.

[57] The same is true for Cyprus: "In the twentieth century the emphasis has been on fault based liability and strict liability has been generally frowned on by the judiciary." Cyprus no. 42.

of legislating, stumbling from one singular statutory act to the next, rarely ever with any obvious road-map that might support their trail.[58] Very few countries are bold enough to fill the gaps thereby opened:[59] Austrian courts at least cautiously apply existing strict liability statutes by analogy, for example, which is denied by the German or the Swiss courts, despite their affiliation to the same legal family.

59 While some countries already have a more or less general clause of strict liability in their statutes, such as the Italian Art. 2050 Codice civile,[60] France seems to be the only jurisdiction that allows liability irrespective of the defendant's behaviour in a general and generous way via Art. 1384 Code civil, which would also extend to the cases that are of concern in this study.[61] Depending on the wording and interpretation of the respective "default" rule of strict liability in those jurisdictions which have enacted one, it remains to be seen whether courts are willing to consider GM farming as a dangerous activity within the meaning of these provisions so that it would trigger strict liability.[62] This is yet another indication that even in civil law countries judges in fact have quite considerable power to shape the practice of tort law, which is often underrated in the discussion about GMO liability that so far seems to focus on legislative acts primarily.

60 Not only do the kinds of risks covered by strict liabilities in Europe vary from country to country, the regimes as such are also framed quite differently: Some allow defences rather generously, others are quite restrictive. Some traditionally limit the amount of damages available under strict liability, other jurisdictions avoid such caps.[63]

61 While fault liability is the default rule in all tort laws, strict liabilities are always the exception thereto.[64] When comparing the legal systems, the question

[58] A comparative overview of existing strict liabilities is given by *B.A. Koch/H. Koziol*, Com parative Conclusions, in: *B.A. Koch/H. Koziol* (eds.), Unification of Tort Law: Strict Liability (2002) 395.

[59] See, e.g., Sweden no. 4: "[I]n Swedish tort law there has been a considerable reluctance to establish strict liability regimes in the absence of legislation."

[60] See also Hungary no. 26 ff. and the debate in the Czech Republic no. 15.

[61] France no. 24, but see Belgium no. 27 29 (where the same wording of the Code leads to the opposite outcome since Belgian courts did not follow their French peers in their broad interpre tation of Art. 1384).

[62] See, e.g., Estonia no. 20; Hungary no. 26 28; Italy no. 20; Luxembourg no. 31; Slovenia no. 10. Cf. Portugal no. 11, 15.
This only applies to countries which either have a broader concept of strict liability embodied in their legislation (such as a general clause) or are at least more open towards expansion by analogy. Others will be more reluctant (to say the least) to allow an inclusion of GMO risks if these are not addressed specifically by express legislation. Consequently, for example, "it seems unlikely that a Swedish court would establish a strict liability regime for GMOs without any clear guidelines from the legislator" (Sweden no. 4).

[63] See *B.A. Koch/H. Koziol* (fn. 58) no. 109 ff. and infra no. 87.

[64] This does not mean, however, that the two bases of liability are of different weight: Cf. *P. Widmer* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 4:101 no. 6.

can therefore be reduced to whether or not a jurisdiction has introduced such a special compensation regime covering the risks under survey.[65]

- Strict product liability in particular

A special branch of tort law which may be considered in this context is product liability. However, the various solutions to implement Directive 85/374/EEC[66] into the Member States' laws as such do not cover the kinds of cases that are of concern to this study.[67] 62

To begin with, seeds or pollen flying around are not "defects" of the GM crops – this is simply a natural feature thereof which has nothing to do with the special genetically modified quality.[68] Therefore, the only imaginable varieties of "defects" within the meaning of the Directive may be inadequate instructions or warnings by the seed producer, e.g. about the GM qualities or the necessary precautions when using the seeds. 63

However, even if all the other requirements of the Directive were met, the narrow definition of what kind of losses are compensable under its regime clearly preclude liability thereunder: Apart from the fact that pure economic loss is not recoverable at all, even consequential losses following property damage are not covered unless they are sustained by a consumer.[69] Art. 9 of the Directive defines damage other than personal injury as: 64

> "(b) damage to, or destruction of, any item of property other than the defective product itself, with a lower threshold of 500 ECU, provided that the item of property:
> (i) is of a type ordinarily intended for private use or consumption, and
> (ii) was used by the injured person mainly for his own private use or consumption. …"

This narrows the scope of the laws implementing the Directive to fields cultivated by individuals for non-commercial use and to the loss of those private landowners, which is beyond the scope of this study. 65

[65] See infra II.2. Turkey is also considering to introduce a strict liability regime in its Law on Biosafety.

[66] Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, [1985] OJ L 210/29, as amended by Directive 1999/34/EC, [1999] OJ L 141/20.

[67] Cf. Belgium no. 26. See also *Ch. von Bar* (fn. 18) no. 276. On the scope of product liability in other GMO scenarios, see *I. Wildhaber*, Produkthaftung im Gentechnikrecht (2000), in particu lar 167 ff. on the German statute implementing the Directive.

[68] Once gene containment techniques have progressed so far that gene flow is under full control in a new generation of GM crops (e.g. the so called "terminator genes"), the occurrence of cross pollination despite such intended features would of course indicate a defect in the particular seed within the meaning of the Directive's regime. On the various techniques see *H. Daniell* (fn. 2) 581.

[69] Belgium no. 39.

66 One may of course argue that national legislators could have expanded the scope of product liability beyond the boundaries of the Directive to include also losses caused to producers such as farmers. However, in light of recent ECJ case law,[70] one is inclined to think that such extensions are not permissible, since the Court emphasised not only the desire of the Directive to protect consumers, but the intended side effect to equally clarify the scope of product liability for producers, who should fall under a uniform standard of product liability throughout the market, and that goal would be clearly shattered if they were liable for business losses in one Member State but not the other.[71] If the prime concerns of the ECJ are consumer claims only, however, which would correspond to the genesis of the Directive, more stringent rules with respect to losses might not be ruled out by the said case law. If so, the existing product liability practice throughout Europe which presently has no problems to award compensation also in a B2B setting could survive the scrutiny of the ECJ.[72]

(iii) Nuisance, trespass and its civil law counterparts

67 Almost all legal systems[73] seem particularly concerned about possible disputes between neighbours, inasmuch as all offer at least some form of special remedy irrespective of fault in cases where some harmful influence originated on the adjoining land. Instead of reproach for some wrongdoing, the underlying motive is rather to find a compromise between two conflicting interests which per se are of the same value: Both landowners have the identical right to enjoy their property, but exercising that right particularly along boundaries may infringe upon the corresponding right of the neighbour (who typically need not be on a contiguous piece of land, but at least within reach of the interference[74]). At least with respect to this theoretical basis, the solutions found to solve neighbourhood conflicts seem to be an ideal starting point to develop co-existence rules in other, more specific areas, such as the problems we are concerned with here. However, the common grounds shall not obscure the fact that the rules developed by the Member States to govern neighbourhood conflicts show quite some differences, not only in detail.[75]

68 Already the theories under which such problems are tackled vary: For the majority of European jurisdictions, this belongs to (or at least originated within

[70] *González Sánchez v. Medicina Asturiana SA*, ECJ 25 April 2002, C 183/00, [2002] ECR I 3901.

[71] *H. Fitz/A. Grau/P. Reindl*, Produkthaftungsgesetz (2nd ed. 2004) § 2 no. 2.

[72] This may be supported by the Court's ruling in *EC Commission v. French Republic*, ECJ 25.4.2002 C 52/00, [2002] ECR I 3827: France had implemented Art. 9(b) in Art. 1386 2 *Code civil* by pro viding that product liability shall only extend to "damage resulting from injury to persons or proper ty other than the defective product itself", thereby disregarding both the private use or consumption requirement and the threshold of € 500. Only the latter was disapproved of by the ECJ, whereas the former was not addressed at all. This impression is supported by the Court's emphasis on consumer protection (rather than a more general reference to victims of product defects) in par. 17.

[73] But see Latvia no. 10; Lithuania no. 15.

[74] See, e.g., Austria no. 27; Belgium no. 32; Greece no. 67; Poland no. 89; Switzerland no. 15.

[75] See, e.g., *Ch. von Bar*, The Common European Law of Torts I (1998) no. 535 ff., 545 ff.

the realm of) property law, as the focus is on the bilateral conflict of exercising real property rights, while common law offers special torts for cases of such kind, thereby focusing on the violation of the victim's rights.[76]

69 One key aspect common to all jurisdictions in such cases, however, is that they tend not to focus so much on the question whether the behaviour of which the neighbour complains is faulty,[77] but whether it is unusual in the area (even though it may be common in other places), which is a highly objective standard, of course. Producing substantial noise, for example, may be abnormal in a quiet residential neighbourhood, but not so in a zone with heavy industry.[78] This test overlaps with the question whether the defendant's behaviour was unreasonable as between neighbours under the circumstances, which also includes a duty to tolerate minor disturbances.[79] It will therefore be of considerable influence on the outcome of GMO cases whether this technology is still entirely new and rarely practiced (which is currently true for almost all European countries)[80] or whether it has turned into a widespread agricultural practice, with conventional and GM farming occupying comparable fractions of the land.[81] If GM crops should ever exceed their conventional predecessors in any given area, tables may even turn and the GM farmer might then have a claim against the conventional farmer if the former's yield is reduced due to admixture with traditional crops that lack the special resistance or other qualities of the GM variant.[82]

70 Another decisive factor may be whether the neighbour aimed something onto the neighbouring ground,[83] or whether it either spread there accidentally (though maybe unavoidably) or did not pass the borderline at all, but still had a negative influence on the enjoyment of the adjoining land.[84] In the GMO scenario, the former would be true if the GM farmer poured a packet of seeds onto neighbouring grounds, whereas the latter is the case if admixture occurs by natural seed or pollen drift.

[76] *Ch. von Bar* (fn. 75) no. 533, 536. As to private nuisance, see Cyprus no. 57 ff.; United King dom no. 41 42. In Finland, the idea of liability for nuisances has obviously been shifted into the more general concept of environmental liability; see Finland no. 56 and infra II.2(b).

[77] E.g. Austria no. 28; Belgium no. 30 ("does not require the existence of fault"); France no. 25; Luxembourg no. 34; Portugal no. 17, 106. Cf. *W.V.H. Rogers*, England, in: *B.A. Koch/H. Koziol* (eds.), Unification of Tort Law: Strict Liability (2002) 101 (no. 29): "Nuisance is the law of give and take … and the issue is 'reasonableness' rather than 'reasonable care'." However see the Netherlands no. 32, where liability depends upon a wrongful act by the neighbour.

[78] See, e.g., Belgium no. 33; Ireland no. 26 ff.

[79] *Ch. von Bar* (fn. 75) no. 534. Cf. Estonia no. 53; Finland no. 17; Germany no. 4, 36 ff.; Ireland no. 30; Luxembourg no. 34; Norway no. 34; Slovenia no. 37 38; Spain no. 62 ff. (on the various systems in the Spanish autonomous regions); Switzerland no. 15.

[80] Cf. Ireland no. 28.

[81] Cf. e.g. Austria no. 4; Denmark no. 44.

[82] Cf. Spain no. 66: Conventional farmers already may have a hard time pursuing all claims based upon nuisance in light of the widespread GMO cultivation.

[83] Cf. § 906 par. 3 BGB (infra 685); Estonia no. 53.

[84] Under common law, the former would qualify as trespass to land, if the defendant did so inten tionally, whereas the latter varieties could only be actionable as a nuisance. United Kingdom no. 56.

71 Not only can neighbours claim compensation under these concepts,[85] but they may also ask for an injunction on the contested conduct or other disturbance on adjoining land subject to further (more restrictive) conditions, including in particular a significant likelihood that the inconvenience will be prolonged or repeated.[86]

72 A special variety of these problems arises if the defendant's activity on or other use of her land was in some way specifically authorized. Even though the right to an injunction may be excluded, compensation may still be due, in particular if the concerns of the affected neighbours were not considered adequately when the permit was issued.[87] While statutory authority "is of major significance in connection with nuisance and related areas,"[88] its impact is from a slightly different angle: Whereas authorized activities on land will typically exclude liability of the landowner, the latter will still have to compensate her neighbours either if the statute explicitly leaves the question of nuisance open or if a permit or other authorization does not amount to statutory authority.[89]

(f) Defences

73 Even if the requirements of a claim in tort law are fulfilled, the claimant may still be left empty-handed or face a reduction of the amount of damages that she would otherwise be awarded if and to the extent that one or more of the legally acknowledged defences come into play in her case.

(i) Human intervention

74 The classic defences are linked to the range of identified causes and consider whether and to what extent another event than the one traced to the defendant played a role in bringing about the loss. The behaviour of third parties is as equally relevant as the conduct of the claimant herself, as is some outside influence such as the forces of nature.[90]

- Third-party conduct

75 Unless superseding the cause within the defendant's sphere, the behaviour of third parties has no influence on a fault-based action from the claimant's perspective as long as all (then) multiple tortfeasors are jointly and severally

[85] One exception is Hungary (no. 29) where the concept is not coupled with compensation rules, so that damage can only be claimed on the basis of general tort law.
[86] See, e.g., Austria no. 23; Estonia no. 53; Ireland no. 57 59; Italy no. 29; Portugal no. 104; United Kingdom no. 41.
[87] Austria no. 28; Denmark no. 44; France no. 25; Germany no. 37 and § 906 par. 1 and 2 BGB (infra 685).
[88] *W.V.H. Rogers* (fn. 77) no. 50.
[89] *W.V.H. Rogers* (fn. 77) no. 50 51. Cf. Ireland no. 34.
[90] United Kingdom no. 51. On the notion of an "unavoidable event" in the Czech Republic see Czech Republic no. 45.

liable: The defendant as one of them will still have to indemnify the claimant to the extent she is liable, even though she may be able to seek recourse from these third parties. If the claim against the defendant is not based upon fault, but rather on strict liability, however, faulty behaviour of third parties may reduce or exclude the defendant's liability: The lower the risk or the less characteristic the harm caused is for the dangerous object or activity, the more likely third-party influence will be considered in favour of the defendant as at least a buffer against her strict liability.

- Contributory causes within the claimant's sphere

76 This is equally true for contributory causes within the claimant's own sphere, in particular for her personal behaviour that played a significant role in bringing about her own loss.[91] A non-GM farmer will typically not be able to shift her loss onto neighbouring GM farmers if it was herself who caused the admixture, e.g. by the improper handling of seeds, but also if these are impure (which may lead to a successful claim against the seed distributor or producer, though). However, not all jurisdictions are equally ready to exculpate a defendant if the blame falling upon the claimant herself does not reach a certain minimum gravity.[92]

77 Along the same lines, all jurisdictions require the claimant to mitigate her loss to the extent reasonable, so she may, for example, not proceed with destroying her crops upon discovering admixture if she could have sold them on the GM market.[93] Also, the contaminated crop may still be used as feed on her own farm without an ensuing need to label the animal products as GM, which may reduce her actual loss.[94]

78 Another universally accepted[95] argument that can reduce or even eliminate the defendant's liability is the claimant's assumption of the risk. If the latter knew or should have known of the potential harm originating from the defendant's sphere, but nevertheless actively exposed herself to it, she can not subsequently build her claim upon the fact that this risk materialized. However, this defence will probably not affect the claim of a farmer who starts to grow non-GM crops which are subsequently contaminated, even if she knew from the start that all her neighbours have opted for GM cultivation: The latter will either only be liable for failure to abide by the applicable co-existence rules, which – even if adhered to – can certainly not eliminate the free choice by neighbours, or they will be strictly liable, in which case their neighbour's decision to start

[91] E.g. Austria no. 48; Belgium no. 38.
[92] *Ch. von Bar* (fn. 18) no. 521 ff., also pointing to other European exceptions from the general rule that contributory conduct is to be considered. See, e.g., Poland no. 3 (only exclusive fault of the victim accepted as valid defence); Portugal no. 40.
[93] See, e.g., Cyprus no. 100; Denmark no. 49; Finland no. 18; Ireland no. 51, 56; Switzerland no. 52; United Kingdom no. 61.
[94] DEFRA Consultation Paper (infra 720 ff.) no. 144.
[95] *Ch. von Bar* (fn. 18) no. 512.

with conventional farming will even less likely be considered as a voluntary exposure to the risk of cross-pollination or the like. This outcome may alter, however, if the GM cultivation was preceded by some contractual arrangement between the owners of adjoining land, if the segregation rules vary depending upon the type of land use in the vicinity, or if the claimant had previously grown GM crops herself.[96]

(ii) Force majeure

79 Force majeure or "acts of God"[97] are commonly cited as standard defences in cases of strict liability and come into play even in high-risk scenarios (though not undisputedly, at least with respect to core risks for which the liability regime was designed)[98]. It is at least doubtful, however, whether the forces of nature such as the wind should invariably trigger this defence in GMO cases: If a jurisdiction should decide to award compensation to a neighbouring farmer to whose fields GM seeds were blown, it seems less convincing to reduce her claim simply because it was the wind that transported the seeds, which lies in their very nature. If the wind was so strong, however, that it transferred the seed beyond a distance to be expected under normal weather conditions, the concerns just mentioned may be less compelling, so that the defence may come into play again.

(iii) Lawful authority

80 The defendant's behaviour may be justified if she can prove that she has acted within the scope of some lawful authority or statutory permission.[99] While jurisdictions are not in full accord as to the scope of that defence,[100] it may operate either as such or will at least be considered when defining the appropriate standard of care that the defendant should have adhered to.[101] Unless a coun-

[96] Depending upon the crop, she may have a hard time, however, proving that the contamination on her field was not caused by volunteer seeds remaining in her soil; cf. supra no. 1.

[97] Note the differences in terminology: *B.A. Koch/H. Koziol* (fn. 58) no. 109. See also *Ch. von Bar* (fn. 18) no. 318 ff. Cf. Finland no. 16 and Sweden no. 27 (these defences are probably not appli cable in the context of strict liability under the Environmental Code). See further *M. Faure/A. Wibisana*, Economic Analysis (supra 542) no. 26 ff., on an economic assessment of this defence.

[98] Cf. *B.A. Koch* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 7:102 no. 1, 5 6. They are of course equally considered in fault cases, though rather as part of the evaluation of the defendant's conduct. But see e.g. Belgium no. 17 18 (force majeure is only a defence if it was the exclusive cause).

[99] *B.A. Koch* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 7:101 no. 17 with further references. See, e.g., Malta no. 16; Portugal no. 41 ff.; Sweden no. 27 (though not a defence but rather a limitation of liability); United Kingdom no. 31. This defence is not acknowledged in Hungary (Hungary no. 24) and Poland (Poland no. 3, 20). See also the doubts raised by the economic analysis by *M. Faure/A. Wibisana*, Economic Analysis (supra 551 ff.) no. 53 54.

[100] See section 3.2.4 on grounds of justification in *W. van Gerven et al.* (eds.), Tort Law (2000), this section available online at http://www.casebooks.eu/download/tort/heading3.2.4.A.pdf (352/3 ff.).

[101] Cf. United Kingdom no. 38. See also DEFRA Consultation Paper (infra 720 ff.) no. 159, where the approval of GMOs is seen as a possible hindrance already with respect to recognizing

try has not coupled its provisions on ascertaining co-existence with duties to compensate losses even irrespective of fault, a farmer therefore has a strong argument against liability if she fully adhered to all the formalities and requirements prescribed by such rules.[102]

(iv) Development risk

Another defence primarily cited in the context of strict liability (in particular strict product liability[103]), but in essence originating within the realm of fault liability,[104] is the development risk (or state-of-the-art) defence.[105] It is built upon the state of scientific and technical knowledge at the time of the activity which is subsequently evaluated as possibly giving rise to liability. 81

The core of the defence merely argues that science and technology did not offer appropriate means to discover, let alone avoid a certain risk at the time of the conduct under scrutiny which later turned out to be harmful. The defence is often expanded (whether permissibly or not) to the broader claim that the risk was unknown or unheard of (even though this is not synonymous with the objective possibility of discovering it, since this may well be feasible, but due to lack of imagination or concern at the time, no-one takes care to investigate it). 82

The precautionary principle[106] goes the other way and effectively speaks against admitting this defence:[107] If precaution shall be taken as soon as there 83

admixture as compensable harm: "A GM crop will only be grown commercially if it passes the legal risk assessment process, so it may be a contradiction to treat as a form of damage the presence of a legally approved GMO."

[102] This is in line with the Opinion of the European Economic and Social Committee (EESC) on the 'Co existence between genetically modified crops, and conventional and organic crops', [2005] OJ C 157/29, 3.6.3: "The fact that a GMO is authorised for release within the Com munity will, generally speaking, rule out the conditions for negligence or intent, unless specific conditions for release were breached." Cf. Art. 8 par. 4 lit. a of the Environmental Liability Directive. But see e.g. Belgium no. 23: "[A] licence to cultivate GMO would not exempt its holder from his duty of care nor from his duty to comply with the legal and administrative rules, as well as from his duty not to inflict on others a disorder that exceeds the extent of the normal disadvantages of vicinity …".

[103] See Art. 7 lit. e of the Product Liability Directive (85/374/EEC): Belgium no. 26; Estonia no. 21; Greece no. 13; Malta no. 20; Portugal no. 21.

[104] Cf., e.g., the *Cambridge Water* case cited by the English report (United Kingdom no. 31).

[105] See the economic perspective on this defence by *M. Faure/A. Wibisana*, Economic Analysis (supra 542 ff.) no. 29 ff.

[106] For anecdotal reference, please note the definition of the precautionary principle used by the U.S. government (http://www.usembassy.at/en/us/glossary.htm): "A term used in Europe (by the EU member states, the Commission, and governments aspiring to join the EU) which has been rejected by virtually *[sic]* all other governments. While many governments apply pre cautionary approaches in a variety of contexts (e.g. food safety, animal and plant health, the environment, etc.), the EU's precautionary principle provides that politicians can over rule science based decisions of regulators. …" For a more serious approach, see the Communica tion from the Commission on the Precautionary Principle, COM (2000) 1 (http://ec.europa.eu/environment/docum/20001_en.htm).

[107] Greece no. 18.

are reasonable grounds for concern of future harm connected to a certain activity, even though this fear can neither be verified nor falsified with the scientific evidence available at the time, conducting that activity nevertheless will always be considered in violation of that principle despite contemporary scientific or technological inability to detect the risk or to prevent ensuing harm, though obviously only if its prevention corresponds to the chosen level of protection.[108]

84 Interestingly,[109] the Environmental Liability Directive allows the Member States to deny liability of the operator if the latter successfully raises the development risk defence (Art. 8 par. 4 lit. b). In current legislation dealing with the risks of GMOs, however, the defence is often expressly excluded.[110]

(v) Time limitation

85 An important bar to recovery is the expiration of a certain time period between the occurrence of the loss and the filing of an action. While it may be the "morally weakest defence,"[111] it is generally accepted throughout Europe without exceptions. Jurisdictions are, however, divided with respect to the length of that period,[112] as well as to its starting point (focusing either on the occurrence of the damaging event or on its harmful effects, whether or not coupled with actual or imputed knowledge thereof by the victim).[113] Further differences include the additional qualification of whether there is any overall limit irrespective of such subjective elements as knowledge of the damage or of the tortfeasor.

(g) Remedies

(i) Damages

86 Generally speaking, all jurisdictions subscribe to the overall aim of full compensation.[114] However, this has to be seen in the light of the initial question of what these systems consider to be compensable in the first place: To the extent they recognize a certain interest as worthy of indemnification, its full (ascertainable) value will be added to the tortfeasor's ultimate bill. However, losses that are excluded from the start will never make it to the remedies stage.[115]

[108] There is an obvious link to the previous defence (no. 80): If the statutory authority backing up the activity at the time was based upon a risk assessment which in itself applied the precaution ary principle, the defence may be valid.
[109] On the critical responses to this legislative choice, see only Spain no. 13 (at fn. 30).
[110] Germany no. 7; Switzerland no. 33.
[111] *Ch. von Bar* (fn. 18) no. 545.
[112] See the overview by *Ch. von Bar* (fn. 18) no. 547.
[113] *Ch. von Bar* (fn. 18) no. 549 ff.
[114] E.g. Cyprus no. 80; Czech Republic no. 68; Denmark no. 45; France no. 30; Hungary no. 12, 30; Lithuania no. 23; Malta no. 21; the Netherlands no. 40; Poland no. 32; Spain no. 68, 74.
[115] Cf. *U. Magnus* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 10:101 no. 7.

The type and extent of compensation for a recognized loss, however, is therefore probably less controversial once the case has reached that final question, but there may be limits to the amounts available: A few jurisdictions couple the introduction of strict liabilities with caps on damages recoverable under these regimes, which at least initially were aimed at striking a balance between the interests involved. Some (like Austria) have given up such limitations in more recent pieces of legislation, while probably the majority of countries only considered introducing a maximum limit if foreseen by an international treaty.[116] 87

(ii) Ad hoc mitigation of damages

Some jurisdictions foresee a rule of "last resort" for the defendant which allows a reduction of the award against her at the discretion of the judge in case of extraordinary and overly burdensome and oppressive circumstances that speak in the defendant's favour. While several civil codes include such an ad hoc mitigation rule, not all jurisdictions actually apply it in court practice.[117] 88

(iii) Other remedies

Apart from monetary awards, it is important to know whether the system allows for injunctive relief, i.e. a tool to ban GM production in advance simply for the fear of admixture that may cause loss in the future, particularly if it has happened before.[118] 89

(h) Interdependencies between the various liability regimes

If a jurisdiction has decided to introduce some stricter form of liability that applies to the cases of our concern, the question remains whether this is meant to offer the victim exclusive remedies, or if she can still resort to traditional tort law (i.e. fault liability) alternatively or even cumulatively – while no legal system would allow her to recover twice, she may at least be allowed to seek indemnification for part of her loss under a fault theory to the extent it is not recoverable under the strict liability regime. 90

Typically, fault or any other general provisions of tort law are not superseded by strict liability rules altogether. While the latter do apply as *leges speciales*, they hardly ever rule out the alternative path via traditional tort law, apart from the fact that they by default tend to leave certain aspects of their claims to be governed by the general rules. 91

[116] *B.A. Koch/H. Koziol* (fn. 58) no. 139.

[117] Czech Republic no. 78 ff.; Estonia no. 31, 38; Finland no. 38; Hungary no. 40 ("not actually applied"); Lithuania no. 26; the Netherlands no. 41 42 ("hardly ever used"); Norway no. 43; Poland no. 92; Portugal no. 120 (only applicable in cases of fault liability); Sweden no. 42; Switzerland no. 54.

[118] See no. 71.

92 All jurisdictions which have provided for special rules that apply to GMO admixture leave the door open to alternative routes that their general tort law regime may provide, including special rules of a more general scope which may apply, but of course also classic fault liability, the latter though subject to its typically much narrower conditions.[119]

(i) Possible other defendants than the GM farmers

(i) Overview

93 In a typical tort law scenario, the farmer whose crops were adversely affected might sue her neighbour(s) from whose farm(s) the GM crops came (at least as suspected), and this is what we have primarily looked at till now. We have thereby not differentiated between the "neighbour" in the sense of the owner of the adjoining land on the one hand and the farmer who cultivates that land on the other, even though these may be different persons, e.g. if the latter is a tenant of the former.[120] This difference may have an impact on identifying the proper defendant in some jurisdictions.[121] In a classic fault-based cause of action, the latter may not be liable for wrongdoing by the tenant farmer since the respective theories of vicarious liability may not provide for a sufficient link between the two.

94 But even if we disregard this potential split of identities on the land from where the GMOs originated, the theories mentioned above also apply to further potential tortfeasors correspondingly.

95 "Anyone involved in the production or handling of GMOs is a potentially liable party when losses occur."[122] One possible alternative defendant, amongst others, could be the seed producer.[123] Also the authority that regulates (and authorizes) the release of GMOs may be targeted, particularly if it later turns out that there were flaws in the legislative or licensing procedure. Depending on the circumstances, further players may be involved, such as the farmers' cooperative from where the claimant borrowed machinery which was not cleaned properly.

96 This does not necessarily mean, however, that those listed will always be subject to liability, quite the contrary: As a rule of thumb, one might say that the farther away from the actual incident on the chain of causation, the less likely someone is to be held liable in (classic) tort law. In any case, the reasons estab-

[119] See, e.g., Austria no. 12; Denmark no. 35; Norway no. 17; Portugal no. 49 ff.

[120] Cf. *I. Glas*, Die Haftungs der Landwirtschaft im Kontext des Pachtrechts und Gesellschafts rechts im Rahmen des Gentechnikrechts, in: *Ch. Gallies/I. Härtel/B. Veit* (eds.), Neue Haf tungsrisiken in der Landwirtschaft: Gentechnik, Lebensmittel und Futtermittelrecht, Umwelt schadensrecht (2007) 141 ff.

[121] United Kingdom no. 42.

[122] *M. Davenport*, Genetically Modified Plants and Foods Brave New World or Brand New Headache for Insurers? 35 [2006] The Brief 56, 61.

[123] Cf., e.g., the statement by a GM seed producer that full seed purity cannot be achieved: http://www.pioneer.com/CMRoot/Pioneer/biotech/images/management.pdf.

lished by tort law to shift the loss of the claimant at least in part to any given defendant need to be fulfilled.

From a policy perspective, several standard points are commonly cited when arguing why an individual along the chain of causation is selected as a potential defendant in tort. These include aspects like: 97

- knowledge of the risk
- profit or some other benefit from the risk
- control of the risk
- ability to prevent the risk from materializing, in particular to bear the costs necessary for such measures
- capability to cover against potential losses in the future.

Depending on the circumstances, the interplay of these factors may vary, and they may be complemented by further arguments. Even though it may appear at first sight that the list only includes pointers into the defendant GM farmer's zone, this is not the case: It may well be, for example, that the defendant was completely unaware of the special risk that her activities posed vis-à-vis her neighbour. In a fault case, it may therefore be of relevance whether the GM farmer knew that her neighbour had switched back to non-GM agriculture after years of using GM seeds as well, which will affect the width of the buffer zones and other precautionary measures. When looking at the latter, at least some of the necessary investments and efforts may be too costly for the GM farmer in relation to the risk or in comparison to the corresponding duties of her neighbours to protect themselves, which are never zero. 98

From the viewpoint of economic analysis, the costs of expanding the buffer zone beyond reasonable or statutory limits (which are marked, for example, by the reduced economic performance of conventional crops that the GM farmer may typically grow in that zone) may exceed the risk of admixture on the adjoining land (which not only takes into account the potential economic loss to the neighbour, but also its likelihood). 99

The overall idea is of course to search for the best way to spread the loss of the individual victim, but this presupposes that there are convincing arguments to shift that loss to others in the first place. 100

(ii) The seed producers in particular

Only one group of possible defendants will be singled out in this survey since applying the above-mentioned list of factors strongly points in their direction, which may even support a channelling of liability upon them:[124] the seed producers[125]. 101

[124] On channelling liability, see infra no. 113.

[125] For the sake of simplicity, this term is used to denominate all operators who develop and/or market GM seeds, whether immediate producers, secondary breeders, or similar members of the seed industry.

102 Unless the cause of action is based upon the fault of the party who triggered the immediate cause of the loss, causal uncertainties if several farmers in the neighbourhood grow GM crops could be circumvented by redirecting the victim's claims against the seed producer – after all, as long as the GMOs can be identified, they may also be traced to a particular producer. This advantage on the causation level also extends to cases where the admixture may have occurred by commingling with remnants in farming equipment – the GMOs, again, arrived there through the distribution chain originating from the seed producer: Even though the latter of course did not place her seeds there, the one who did was one of her customers, and the risk of not being able to identify which one of them it actually was could be absorbed by the distributor from whom the consignment causing the loss originated. This presupposes that the seed producer can in turn spread this risk upon all her customers via the price mechanism.

103 If the theory on which liability is based does not depend upon faulty behaviour within the GM farmer's sphere, incentives to ensure good farming practice are inevitably reduced, which in turn reduces concerns to keep the GM farmer high in the list of priority defendants.

104 A cost-benefit-argument harps on the tunes of *cuius commodum, eius et in commoda*: The seed producers have not started biotechnology for Samaritan purposes, but for profit, which they derive from customers who in turn expose their neighbours to the risk of admixture. If the loss is channelled onto the seed producers, the GM farmers are not entirely off the hook since they will ultimately contribute to these extra expenditures at the seed producers' level since the latter will inevitably pass these costs onto their customers via the price mechanism.

105 Seed producers in North America already try to ensure that they collect the full benefit from their investment by suing conventional or organic farmers on whose fields GM traces have been found for fees, even if it is assumed that these farmers have not contributed in any way to this admixture.[126] If the seed producers thereby volunteer to extend their profit range to third parties, it seems logical and fair to use exactly the same line of causation in the reverse direction as well.

106 Further support can be drawn from a larger perspective: If all the effects, both profits and losses, are centred in the hands of the seed producers, they have ample incentives to expand the margin between the two e.g. by monitoring the production line, by ensuring that their customers are properly instructed on how to use their seeds,[127] and ultimately by continuing research on their

[126] See, e.g., http://www.percyschmeiser.com on the famous Canadian case of *Monsanto v. Schmeiser*.

[127] DEFRA Consultation Paper (infra 720 ff.) no. 156: "Making GM seed companies responsible would give them a clear incentive to ensure an effective coexistence regime."

products, also with respect to potential detrimental effects that have not been discovered before.[128]

The seed producers might not necessarily oppose the channelling as such – Monsanto, for example, participates in an innovative compensation scheme practiced in Germany which has the same effect – ensuring compensation to conventional and organic farmers, while at the same time GM farmers are relieved of the threat of potential individual or collective liability.[129] Furthermore, the industry is already on alert since the StarLink fiasco, when GM maize by Aventis CropScience (now owned by Bayer) found its way into the food production chain despite lack of approval for human consumption. Aventis ultimately had to pay a US$ 110 million settlement,[130] which made insurers, among others, nervous. 107

If seed producers assumed the risk of unwanted crop spreading, they could thereby convince more and more farmers to switch to GM agriculture, who would consequently leave the group of possible claimants for the losses under survey here. 108

(j) Problems of aggregation

(i) Multiple tortfeasors[131]

If more than one tortfeasor may be liable for the same loss[132], any legal system will have to decide how to apportion the risk among these parties. The ultimate solution is not hard to imagine: Ideally, all those responsible for a loss should contribute to indemnifying it according to their respective share in causing the harm. Very often, however, this portion will be hard to determine, and even if a certain weighing may be possible, an exact percentage figure will be difficult to calculate. Jurisdictions typically cut that Gordian knot by holding all those liable for equal shares whose exact degree of participation cannot be determined, the latter of course being dependent upon the respective laws of evidence and other procedural factors. 109

A necessary follow-up question then is whether to allow the victim to pick just one of the many possible defendants who will have to indemnify her in full, though with an obvious right to go after the other tortfeasors for contribution. 110

[128] Cf. DEFRA Consultation Paper (infra 720 ff.) no. 156.

[129] See infra no. 109 ff.

[130] A court decision in this case before settlement was *In re StarLink Corn Prods. Liab. Litig.,* 212 F. Supp. 2d 828 (N.D. Ill. 2002). The details of the settlement are described at http://www.starlinkcorn.com/Claims/Documents/34800Starlink1232qxd.doc.

[131] See generally (and with much more detail) *W.V.H. Rogers*, Comparative Report on Multi ple Tortfeasors, in: *W.V.H. Rogers* (ed.), Unification of Tort Law: Multiple Tortfeasors (2004) 271.

[132] Obviously, if each tortfeasor only has to account for one particular part of the overall loss which can be clearly distinguished from the rest, the issues in the following do not arise. See *W.V.H. Rogers* (fn. 131) no. 12 14.

Alternatively, the victim will have to sue each of the tortfeasors individually, so she will only collect a respective portion from each of them (and bear the additional risk that she may not be able to bring one of them before a court of law or succeed there for reasons particularly associated with that individual defendant).

111 The key question underlying that choice is who shall bear the risk of insolvency of one or more of the defendants. In a victim-friendly climate, obviously the first solution is the best, as the risk of not being able to collect damages from one of the tortfeasors is passed on to their "colleagues" who will fail to receive reimbursement of the part of the loss which they paid to the victim on behalf of the (now insolvent) other tortfeasor. Alternatively, one could argue that fairness demands alternative two, particularly in a fact setting where the multiple tortfeasors are joined because of uncertainties as to which of them really did participate in causing the loss, in which case at least one of them may be held liable even though she in fact did not (or not to that degree) cause the loss.

112 Jurisdictions are in accord that generally multiple tortfeasors should be jointly and severally liable[133], so they decide in favour of the victim and let her pick and choose a defendant who will then have to compensate her in full, coupled with a right of recourse against the others.[134] The alternative solution of proportionate liability is only an option if the respective shares in causing the loss can be identified.

113 A different approach could be taken if a legal system should decide ex ante that one of the actors should be at the primary focus of compensation claims, so that liability should be channelled to this tortfeasor either primarily or to the exclusion of more remotely connected parties.[135] This is not necessarily to the advantage of the victim: Claims against others may be precluded altogether.[136] Still, singling out one of many possible defendants may be supported, for example, by the assumption that her influence on the chain of causation in a standard case will often be stronger than that of others, that she was in a better position to prevent the loss, or that she can more easily spread the risk internally between all those involved. In particular, not only will she probably be in a better position to obtain insurance cover, but she can also typically pass those costs on to other parties involved (including the ultimate victims).[137]

[133] On the terminology, see *W.V.H. Rogers* (fn. 131) no. 3.

[134] *W.V.H. Rogers* (fn. 131) no. 4 ("remarkable uniformity"); see also Austria no. 36 37; Cyprus no. 32; Czech Republic no. 36; Estonia no. 13; Finland no. 13; France no. 20; Germany no. 10; Greece no. 56 ff.; Hungary no. 18 19; Ireland no. 18; Latvia no. 7; Malta no. 13; the Nether lands no. 15; Poland no. 24, 74 76; Portugal no. 36, 96; Slovakia no. 13, 19; Slovenia no. 32; Spain no. 20, 53; Sweden no. 17; Switzerland no. 26.

[135] On an economic assessment of channelling liability, see *M. Faure/A. Wibisana*, Economic Analysis (supra 558 f.) no. 73 74.

[136] See, e.g., Switzerland no. 6 7.

[137] Cf. *M. Faure/A. Wibisana*, Economic Analysis (supra 535) no. 9.

(ii) Multiple victims

A different (and additional) range of problems may arise if there is not just one victim of the same event, but if, for example, the fields of several conventional farmers have been contaminated, assuming for the sake of the argument that the GMOs originated in just one field.[138] From a substantive law perspective, these multiple victims may encounter barriers to full recovery which arise just because there is more than one claimant: Caps on liability may be narrowed by overall limits per event, so that if more victims suffer a loss equalling or exceeding the individual caps, their compensation will be reduced proportionally even though they would recover the full maximum amount if they had suffered harm alone. Procedural law may include further hurdles (or advantages[139]) for a group of victims, which is beyond the scope of this study, however. 114

4. Insurance options

(a) General aspects

Another way to obtain compensation is via insurance. The major difference here is that the victim at least in theory can draw from much larger funds than if she went after the individual farmer or any other tortfeasor. While the first variety that comes to one's mind in this context may be the latter's liability insurance (infra (b)), which is obviously closely linked to the tort law options just mentioned, one should not forget the alternative model of self-insurance of the potential victim, which will be dealt with separately (infra (c)).[140] 115

Either way, insurance allows the pooling of risks among a larger group of people exposed thereto, and this group can be expanded by law if it requires those at risk to provide for such cover. Claims will be handled by professionals who do just that, and – depending upon the insurance conditions – the procedure to pay out awards will be less complicated than before a court of law. Making insurance compulsory can contribute to ensuring that the product meets a certain demand on the market, though it may at the same time distort market forces and hinder proper risk differentiation, particularly if sufficient information to assess the risk is lacking.[141] After all, the insurer should tailor the policies according to the various aspects of the risk, ideally with respect to each insured. At least in theory, for example, those who run a higher risk should therefore also pay higher premiums. This is not necessarily always the 116

[138] If there are more possible sources of harm, the above mentioned problems of multiple tort feasors also multiply the complications of the case. In particular, causation will be a major problem zone as the GM farmers may argue that their crops did not cause the same degree of harm to each of the victims (which may be well founded in light of the geographic distribution of fields).

[139] Cf. Sweden no. 19: Cases of the kind envisaged here may be dealt with by a class action, which was introduced in 2002.

[140] See also *M. Faure/A. Wibisana*, Economic Analysis (supra 567 ff.) no. 93 ff.

[141] *M. Faure/A. Wibisana*, Economic Analysis (supra 568 ff.) no. 98 ff. (in particular no. 103).

case, but under a mandatory insurance scheme, it is even less likely that this balance is achieved.

117 The standard checklist used to determine if a risk is insurable includes questions such as whether the frequency and severity of potential claims can be estimated, and whether the occurrence of a loss is truly fortuitous within the terms of the policy.[142]

> "At this point, GMOs present more unknown than known variables for insurers. Sufficient loss history is not available to underwrite GMO exposures. The technology used to create GMOs and the varieties of available GMOs are perpetually advancing. Thus, evaluating the risks inherent to particular GMO techniques or GMOs is of little value from a risk-bearing standpoint, especially since the long-term impacts of GMOs are totally unknown. Obviously, unknown variables are difficult, if not impossible, for an actuary to evaluate."[143]

118 This has led the insurance industry to include far-reaching exclusions of GMO risks into their policies,[144] even though some apparently offer "buybacks" to cover at least third-party liability exposure with clear-cut limitations.[145]

119 One key problem that affects all types of insurances is the wide range of risk scenarios in light of the various plants' distinctive potential for gene flow.[146] Insurers therefore argue that achieving a "uniform insurance solution for all plant types seems virtually impossible."[147] The administrative costs of establishing, marketing and administering a risk-specific range of insurance products would at least be very significant.

120 Another important issue concerns the extent of possible harm that shall be covered by the insurance. While this can always be defined by the policy itself (from risk exclusions to restrictions concerning the insured amounts), such a limited product may not meet market demands, particularly if farmers are required by law to buy insurance cover for risks beyond such boundaries. Insurers therefore argue that the potential compensable damage needs further legal specification, in particular with respect to the question whether losses arising from admixture below the 0.9% threshold should also be covered. Insurers want this to be answered in the negative since "it appears to be virtually im-

[142] *M. Davenport* (fn. 122) 61.
[143] *M. Davenport* (fn. 122) 61.
[144] *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 577 ff.) no. 1, 4 ff. See the sample wording cited by *M. Davenport* (fn. 122) 59 (Exhibit 1): "This insurance does not ap ply to any injury, damage, expense, cost, loss, liability, or legal obligation arising out of or in any way related to modified seeds, plants, grains, crops, organisms, animals, or other material, however caused …"
[145] See Exhibit 2 given by *M. Davenport* (fn. 122) 62 63.
[146] See supra at fn. 2.
[147] *I. Ebert/Ch. Lahnstein* (supra 580) no. 13.

possible to avoid any trace of cross-pollination,"[148] which would eliminate the fortuity of the risk for practical purposes.

(b) Third party insurance

Third-party liability insurance seems to be most relevant in the context of the cases under survey here. However, it is interdependent with the tort law addressed earlier and therefore only shifts the problem to another arena without truly solving it. Insurance thereby serves as a cushion to the shortcomings of tort law proper, inasmuch as it helps to simplify and to assure access to payments, but it certainly cannot level out the different requirements for liability in the various Member States mentioned above. All the uncertainties surrounding the question of tortious liability as indicated in part I.3 add to the further uncertainties with respect to the extent of a potential loss as well as its frequency. 121

Arguably the most important obstacle to offering liability insurance cover is a tort law regime which allows for compensation of any type of loss irrespective of any wrongdoing by the insured and coupled with a presumption of causation. Obviously, such a scheme[149] substantially increases the chances for a non-GM farmer to obtain compensation. This in turn converts the risk of the insured to be held liable into almost certainty, which runs afoul of the most fundamental principles of insurance.[150] As a minimum, insurers demand that the scope of compensable harm be clearly defined by excluding losses resulting from admixture with GMOs below the 0.9% threshold that currently triggers labelling requirements (and which thereby is crucial for determining the ensuing loss).[151] Needless to say, the current lack of such a threshold with respect to seeds would also have to be reconsidered. 122

If we disregard the severe restrictions on or the complete unavailability of liability insurance which covers GM risks, those most likely interested in buying such policies are the farmers who have opted to cultivate GM crops. By taking out insurance, they can spread the risk among each other, which effectively reduces the likelihood of having to compensate the entire harm caused individually. This is obviously also in the interest of potential victims who are thereby at least to some extent relieved of the risk that "their" tortfeasor becomes insolvent, and their position would be further improved if they could file direct claims with the insurer. What is sometimes overlooked, however, is the fact that it is actually the ultimate consumer who pays the insurance premiums: The GM farmer will inevitably try to pass on these costs to her customers, or at least include them in her calculation. 123

[148] *I. Ebert/Ch. Lahnstein* (supra 578) no. 4.
[149] Cf. the Austrian liability regime infra no. 158.
[150] Cf. *I. Ebert/Ch. Lahnstein* (supra 577 f.) no. 1, 4.
[151] *I. Ebert/Ch. Lahnstein* (supra 578) no. 4. See also the DEFRA Consultation Paper (infra 720 ff.) no. 138: "It would be a disproportionate burden on the GM sector to make it liable for redress on the basis of a threshold stricter than the relevant legal standard."

124 Another group of potential insurance clients are the seed suppliers, who are one step behind in the production chain. Depending on the liability regime, they will also have a more or less stronger interest in taking out cover against the risk of being sued (albeit by way of recourse).

125 The practical importance of such a risk pool is bolstered, of course, by statutory rules requiring insurance against liability risks.[152] These only make sense, however, if the insurance market is ready to offer adequate products for those who are obliged to take out such cover.

126 Depending on the policy, insurance cover – if available at all – will typically be limited to a certain maximum amount. Further caps may apply cumulatively, such as an "aggregate limit", defining how much the insurer will pay out in any one given time period per insured, or a "per occurrence" limit, which caps payments for all claims filed with the same insurer that arise out of a single event.

(c) First party insurance

127 An alternative type of insurance would be first-party insurance: Potential victims thereby have to take out insurance themselves for their own risk of loss.[153] Probably all farmers already have first-party policies such as farm property insurance, though covering different risks, for example natural disasters such as hail or the like. However, these hazards are typically named in a closed list which excludes other risks such as GMO admixture.

128 Suggesting that first-party insurance could be one way to ensure that the losses of non-GM farmers are made good sounds problematic since this option seems to be too close to the starting point where the immediate victim had to bear her own loss entirely (supra I.2(b)), even though self-insurance would spread that risk at least among all other potential victims who join that pool.

129 Still, "[e]conomists are relatively enthusiastic concerning this first party insurance"[154]: Potential victims should know best what losses they may suffer, and they can shop for the best cover against risks that they think should be taken care of. They tend to receive payments faster than under other redress mechanisms since the awards are paid out upon the occurrence of the insured

[152] See, e.g., Luxembourg no. 53. Cf. supra no. 116.

[153] Cf. *M. Faure/D. Grimeaud*, Financial Assurance Issues of Environmental Liability, in: *M. Faure* (ed.), Deterrence, Insurability, and Compensation in Environmental Liability (2003) 7, 208 209, 217 ff., on first party insurance against environmental harm.

[154] *M. Faure/A. Wibisana*, Economic Analysis (supra 568) no. 97. Interestingly, the British National Farmers Union, whose insurer (NFU Mutual) offers agricultural insurance, also seems to be in favour of such a regime: "Of the possible financial instruments to compensate non GM growers against economic loss due to admixture we would favour an insurance based approach. In princi ple, first party insurance against economic loss due to admixture is the most attractive insurance option." Cited after http://www.non gm farmers.com/news_details.asp?ID 747.

loss and (at least in general) irrespective of its cause, even though some may be excluded in the policy.

However, for the very same reason, there is hardly any incentive for the victim to protect herself against damage beyond the requirements imposed upon her by the insurer, and the tortfeasor is not even addressed at all by the regime. The – at best – limited deterrent effect of tort law will be even further reduced if the potential tortfeasor knows that the harmful consequences of her conduct will be cushioned by resources to which she need not contribute unless the insurer sues her in a recourse action, which is not very likely at least in minor tort cases. 130

The potential victims may not see themselves as such – they may simply not be aware of the fact that someone in the vicinity may or already has started to cultivate GM crops. The risk of gene flow may be underestimated as well, which further reduces the conventional farmer's incentives to buy first-party insurance. 131

Furthermore, she simply may not see any need to do so in light of an obvious fairness argument: It may be difficult to convince conventional or organic farmers that they themselves should invest money into loss prevention if the risk is brought about by their neighbour whose profits from GM cultivation will not equally be reduced by any insurance premiums. 132

Nevertheless, first-party insurance could be of particular importance at least in all those cases where there is no other way that leads to compensation, for example due to difficulties of proving causation, or because the applicable national system denies liability if the cultivation of GM crops was done in accordance with the applicable farming standards in force at the time. Even if that was not the case, the tortfeasor may be insolvent and uninsured. There may be no compensation fund set up yet, or it may be dried out already. If non-GM farmers are aware of these possibilities (which is not necessarily the case, though), they may have ample motivation to seek cover against potential losses themselves. 133

For practical purposes, however, first-party insurance will only be an alternative route to redress the kinds of losses under survey here if it is priced in a way that makes it attractive to potential clients. Not only must there be sufficient information about the risk available to insurers,[155] but also the number of participants in the pool must be big and diverse enough in order to allow a better risk differentiation. More demand typically also increases competition among insurers, which tends to put pressure on the pricing. 134

One possible way to make such a product more attractive to farmers would be to bundle it with other farm insurances or to include the risk in existing policies, if only by eliminating or at least reducing the current GMO exclusions.[156] 135

[155] *M. Faure/A. Wibisana*, Economic Analysis (supra 570) no. 103.
[156] Cf. supra at fn. 144.

As with other risks involving a high degree of uncertainty, cover could be subject to time limitations, e.g. per cultivation season. The awards could be capped at a certain amount correlating to the potential loss of the individual farmer, which can be determined in light of the crop cultivated, the size of the field and its environment. Expanding existing farm insurance cover would also have the advantage of existing distribution networks.

5. Compensation funds

136 Another option contemplated by at least some jurisdictions is compensation funds.[157] While the risk pool is usually smaller compared to an insurance solution, such funds have the big advantage that they can be tailor-made to the particular problems they should address. Furthermore, such funds tend to have procedural advantages in comparison to other regimes: Since the risk group is identified in advance, the administration of the fund can also be adjusted to their specific needs. Formalities are typically easier to fulfil for the claimants, and payments can be faster than under other schemes. They are not necessarily linked to liability rules, in which case problems resulting from establishing the latters' requirements may be disregarded.[158]

137 Also, the range of payors who contribute to the fund is typically broader than in the classic insurance scheme. Not only those immediately concerned can be involved, but also others with a more general interest, including the State, which may otherwise not contribute to indemnifying losses (though participation in an insurance pool may be imaginable, for example by way of a State guarantee).[159] However, the amount of each stakeholder's contribution is not always easy to determine: While in the insurance setting, it is the decision (and responsibility) of the insurer to determine how high the premiums must be in order to maintain a functioning system, payments into compensation funds are not always calculated according to risk assessment as defined by actuarial mathematics. Particularly the State contributions tend to follow political and/or budgetary constraints.

138 On the other hand, for the very same reasons, compensation funds can be introduced to fill a gap in the insurance market: Even if commercial insurers fear that lack of information prevents them from properly assessing risks and therefore feel unable to offer cover, funds may nevertheless (or even just for that cause) be installed in order to at least serve as a temporary solution until the market can take over.

139 Compensation funds may have to operate with less financial means, though, and depending upon the pooling arrangement, the funds may be dried out even

[157] See infra II.3 for examples.
[158] Cf. the options for a "statutory redress mechanism" listed by the DEFRA Consultation Paper (infra 720 ff.) no. 165 ff.
[159] State aid restrictions impose obvious limitations on the possibilities of state involvement, of course.

before all claims have been settled. This may happen particularly if they serve as a gap filler in the way just mentioned: If the risks are not yet entirely known or hard to predict (as otherwise insurers would step in), actual claims may by far exceed expectations. The reverse may equally be true, however: If the aggregate contributions to the fund are not spent, this means in retrospect that they were priced too high, which in turn made GM crop cultivation more expensive and consequently less competitive than necessary.

Lack of current information is not the only reason why compensation funds may have to struggle with inadequate risk assessment – depending on the political pressure that tends to precede the formation of such a risk pool, its conditions may not even entirely reflect what is already known. 140

Risk differentiation may also be inadequate in comparison to alternative indemnification models. Those who contribute to the fund are not necessarily those who are in control of the risk that shall be covered, or at least their contribution may not reflect the actual weight of their influence. 141

Payments out of the fund may not be as predictable as insurance awards, particularly if the means of the fund are limited, or if payments are at least in part only discretionary awards. A much more serious problem arises, however, if the fund is installed ad hoc after a first loss has actually occurred. 142

One more fundamental argument against compensation funds is the principle of equality: Why are certain risks (and therefore certain claimants) favoured whereas others are left to the more traditional ways of obtaining compensation? Indeed, one may wonder why a comparatively exotic risk such as the economic losses caused by gene flow should deserve to be addressed by a special fund as long as traffic accidents and other, much more frequent loss scenarios are not equally addressed. The reasons for establishing a fund can certainly not provide us with all the answers thereto. 143

6. Ad hoc compensation

One may of course also take a more fatalistic approach and argue that there will always be a solution in case of need. One thereby typically points to the State which often steps in on a case-by-case basis, though depending upon the degree of public awareness, which may not always be very high in the cases under survey here. Other ad hoc solutions include monies and further benefits donated by individuals after a damaging event, but this is also not something very likely to happen in the scenarios envisaged here. Only large-scale or in some other way spectacular losses may qualify for such contributions by the general public, which is typically dependant upon the degree of media attention given to the case.[160] 144

[160] But see websites like, e.g., http://www.percyschmeiser.com where a victim of adventitious admixture asks for donations to support his quest against a seed producer.

145 In any event, ad hoc compensation is per definition unpredictable, both with respect to likelihood and quantum, and can therefore not be considered for the ex ante planning of co-existence measures. Furthermore, the amounts paid out differ quite substantially, which leads to inequalities that must be avoided.

146 One special variant of an ad hoc regime is given if the GM farmer has contracted with all her conventional neighbours before getting started.[161] Such an agreement could include an ex ante distribution of the risk, in particular in the form of a contractual promise by the GM farmer to indemnify her neighbours for losses they may encounter due to admixture, possibly including the costs of testing. The neighbours' claims will then become contractual, which typically improves their standing in a subsequent dispute.

7. Links to other loss scenarios

147 While the Product Liability Directive[162] is focused on harm to the individual, the Environmental Liability Directive[163] does not apply to "traditional damage" such as personal injury, damage to private property or to any economic loss. Instead, it is concerned with harm to the environment as such, i.e. to biodiversity, water and land. Nevertheless, some Member States have already introduced environmental liability regimes that at least address losses of individuals as well. While some of them are of no relevance to this study, however,[164] others at least arguably also offer compensation for losses caused by GMO admixture, which not only requires that they cover the peculiar harmful events that are of concern here, but also that their definition of "environmental damage" extends to losses of such kind.[165]

148 There is a considerable degree of overlap between the modern concept of environmental liability and the traditional concept of liability between neighbours. The responses of the various legal systems to immissions from neighbouring land described above[166] offer at least some guidance for developing a suitable model when deciding on how to compensate losses of the kind envisaged by

[161] The likelihood of such an agreement is not as remote as it may appear after all, some jurisdictions require GM farmers to collect declarations of consent by their neighbours, which is a prerequisite for their permit to cultivate GM crops.

[162] Supra no. 62 ff.

[163] Directive 2004/35/EC of the European Parliament and of the Council on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage, [2004] OJ L 143/56.

[164] This is true, e.g., for Denmark no. 34; England no. 4; Poland no. 63 64; Slovakia no. 6 8; Sweden no. 3 (probably not applicable, though suitable).

[165] As to Finland, see II.2(b). See also Norway no. 3 (express reference to Pollution Act included in Genetic Technology Act); Portugal no. 7 ff. Romania also seems to consider providing for compensation of losses arising from GMO admixture in the course of the legislation implementing the Environmental Liability Directive. Cf. also Art. 24 of the Liechtenstein Act on Genetically Modified or Pathogenic Organisms ("Gesetz vom 17. Dezember 1998 über den Umgang mit gentechnisch veränderten oder pathogenen Organismen"), which introduces strict liability for harm "to humans or to the environment" caused by the special traits of GMOs.

[166] Supra I.3(e)(iii).

this study. It is particularly helpful to look at the solutions found for the interplay between the interests of those who pursue activities that have been licensed by the authorities on the one hand and the concerns of their neighbours not to be interfered with in their enjoyment of their own land on the other.

149 Take the example of a discotheque: Running such an establishment is not something prohibited per se, quite the contrary: There is a certain interest of society to make it possible that such places can be set up and maintained. There are, however, several regulatory restrictions thereto which are designed to preserve potentially conflicting interests that may be affected by such a business. If we focus on neighbours only, there is an obvious concern that there will be disturbances from the noise generated by such an establishment, for example. This should be dealt with by building regulations and other rules of administrative law: A permit to the discotheque owner will only be issued if – among other requirements – the legally defined noise thresholds are not exceeded, which means the applicant will have to take the necessary precautions, e.g. apply proper insulation measures, so that she can meet these conditions. The neighbours may still hear sound coming from the discotheque, but it should not be louder than what the law deems reasonably acceptable under the particular circumstances, otherwise the rules are either wrong or have not been implemented properly, in which case the neighbours can seek redress.

150 A new highway running through a rural neighbourhood will (or at least should) not be built unless all legally defined caveats are taken care of. Apart from more general environmental concerns, there may be a certain unavoidable emission of fuel components and heavy metals from the traffic onto adjoining land, which may ultimately affect the marketability of the agricultural products produced nearby. Law has to take account not only of the overall environmental impact of such a new road, but also of the adverse effects upon the neighbours who are all known individually in advance. Licensing procedures and other administrative measures (e.g. acquisition or expropriation of adjoining land up to a certain distance from the road in exchange for compensation) should make sure that a balance can be struck (inter alia) between the interests of society at large in the planned addition to the traffic network on the one hand and those of the landowners nearby on the other. As long as the safeguards of the regulatory framework have been observed, owners of land near a new highway will not have a legally valid claim for compensation of the remaining and at least generally foreseen detrimental effects of the emissions stemming from the newly opened highway.

151 An entirely different set of problems is connected to catastrophes and the losses to individuals resulting therefrom. At first sight, they seem to have very little, if anything, in common. Not only is the extent of harm in those cases dramatically different at least from the standard cases envisaged here, but also the events causing the loss are apparently completely unrelated. After all, catastrophes are typically associated with the forces of the uncontrollable elements, whereas GMO admixture would not occur without human intervention, if only

by the GM farmer. There are at least some arguments bridging this gap: The notion of "catastrophes" may well include man-made, including technological, disasters, and even natural catastrophes sometimes would not have the same impact if there had not been some very human failure multiplying the damage. When it comes to the cases we are focusing on, it may well have been the uncontrollable forces of nature without which the pollen or seed would never have spread to the neighbouring land.

152 The reason why catastrophes are mentioned in this context lies elsewhere, however: It is commonplace that farmers can (more or less) easily obtain insurance cover against losses caused by natural disasters. It is equally well known that there are permanent State funds ready to step in when such risks materialize, and even in countries which lack such ex ante planning, these have a considerable experience with ad hoc compensation schemes developed ex post.[167] Similar solutions may apply to animal or crop diseases. One may wonder, therefore, why it is possible to tie a more or less satisfactory safety net in response to fairly unforeseeable risks, but not in cases where someone in the vicinity wants to start growing GM crops. A quick reply may point at the fact that admixture may ultimately be unavoidable, and that the risk in the latter case is strongly influenced by geographic, climatic and other individual criteria. Also, it is simply too predictable, i.e. the risk is much more likely, if not certain, to materialize. On the other hand, the (current) impossibility to fully control gene flow does not mean that every neighbouring field will inevitably be contaminated above the 0.9% threshold (thereby presupposing that the GM farmer abides by the applicable farming standards such as ample buffer zones etc.). Considering how often certain regions are hit by destructive hailstorms, the chances of losing one's entire crop may not be so much different. Therefore, at the bottom line lies the unpleasant question: How can we explain to non-GM farmers why they are compensated if their crops are destroyed by pattering hailstones, but not if GM pollen are spread onto their fields?

II. Current solutions

1. Introduction

153 A survey of the status quo in all jurisdictions covered conveys a rather diverse and inhomogeneous picture. The lowest detectable common denominator seems to be the fact that most systems are currently on the move, either by implementing changes recently legislated, or by at least considering future amendments to their liability regimes.

154 Those countries which have already introduced specific legislation dealing with losses caused by GMOs have thereby taken a clear stand, either in favour of or against GM cultivation: Jurisdictions which have adopted a very strict li-

[167] On the various responses to catastrophes and the ways to compensate ensuing losses, see *M. Faure/T. Hartlief* (eds.), Financial Compensation for Victims of Catastrophes (2006).

ability regime clearly signal caution or more concern with regard to such farming technology, others which have designed compensation rather than liability schemes apparently want to ensure and facilitate actual co-existence between conventional and GM farming. Mere silence of other legislators is neutral in this respect, in particular if the legislative process is still going on.

155 In the following part, only those aspects of the legal systems under survey will be mentioned which have been designed specifically to address the problems of involuntary GMO admixture. General tort law issues will not be addressed since these have already been mentioned in the overview given above (I.3).

2. Special liability regimes

156 The first group of specific solutions include both liability regimes which have been tailor-made for our problem setting as well as provisions which merely refer such cases to another special tort law regime which would not be applicable otherwise. Some countries such as Germany, for example, explicitly assign the cases under survey here to neighbourhood or any other special indemnification rules of broader application, which in substance nevertheless renders this solution unique although it has not been designed specifically for the GMO scenario.

(a) Austria

157 The Austrian special statutory liability regime for GMOs is modelled after the general rules on compensation for neighbourhood interferences, including a right to obtain an injunction against GMO cultivation on adjoining land if such cultivation is not customary in the area concerned.[168]

158 If the claimant substantiates that some activity within the defendant's sphere was generally apt under the circumstances to cause the kind of harm she actually suffered, it is presumed that it was indeed the defendant who caused the claimant's losses,[169] and if the latter cannot rebut this presumption, she will be liable without fault. If there is more than one neighbour who cultivates GM crops, they are all liable jointly and severally unless their individual contributions can be identified.

159 Claims arising under this special regime first need to be brought before a conciliation body, and only if a settlement cannot be reached may the claimant proceed to bring the case before a court of law.[170]

160 Several Austrian Federal Provinces (*Bundesländer*) have introduced their own Genetic Engineering Precautionary Measures Act (*Gentechnik Vorsorge*

[168] Austria no. 4.
[169] Austria no. 7.
[170] Austria no. 21.

gesetz, *GtVG*), of which some include special liability rules.[171] However, these separate rules have to be disregarded since their enactment constitutes a clear violation of the Austrian Federal Constitution.[172]

(b) Finland

161 Sec. 36 par. 1 of the Finnish Gene Technology Act (GTA) holds that "damage to the environment" caused inter alia by the deliberate release of GMOs (sec. 2 GTA) shall be compensated according to the 1994 Environmental Damage Compensation Act (EDCA), which effectively replaced the traditional civil law rules on nuisance as between neighbouring land.[173] As the Finnish report suggests,[174] cases of involuntary admixture of GM with conventional or organic crops would fall under this notion of environmental harm and consequently be governed by the EDCA, which provides for strict liability of the operator of a harmful activity, but excludes minor losses. If not, the harmful consequences of admixture would be "other loss" as referred to by sec. 36 par. 3 GTA, which is to be compensated according to the general rules of tort law, though at the express exclusion of the requirement of fault.

(c) France

162 In contrast to earlier attempts to legislate on the matter, a recent draft law provides for strict liability of the GM farmer (*responsabilité de plein droit*) for economic losses of his non-GM peers under certain conditions: The fields concerned must be within a certain distance, both the GM and non-GM crops must have been grown in the same harvesting season and the non-GM farmer must have intended to make commercial use of her produce, which turns out to be subject to the labelling requirements (i.e. exceeding the 0.9% threshold). In order to be able to cover such losses, the GM farmer must provide for some financial guarantee yet to be determined in detail.

[171] See § 11 Burgenland GtVG, 19.5.2005, LGBl 2005/65; § 12 Carinthian GtVG, 21.10.2004, LGBl 2005/5 (available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/cfcontent.cfm?vFile 220030200DE.PDF) and § 8 Salzburg GtVG, 7.7.2004, LGBl 2004/75 (available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/cfcontent.cfm?vFile 220030475DE.PDF).

[172] Art. 10 par. 1 no. 6 of the Austrian Federal Constitution gives the exclusive power to legislate in civil law affairs to the Federation. While Art. 15 par. 9 allows the Federal Provinces to adopt civil law provisions that are necessary for the regulation of subjects within their own field of legislation, this exceptional power can only be exercised to the extent it is necessary and not in conflict with federal law. In the instant case, the Federal Gene Technology Act already provides for liability rules, conflicting provisions on the level of the Provinces are therefore not admissible (apart from the fact that the rather bizarre contents of the said provisions would violate the principle of equality if valid).

[173] Sec. 18 of the 1920 Act on Neighbour Relations, Finland no. 56 (with only indoor conflicts remaining within that provision's scope).

[174] Finland no. 1.

(d) Germany

163 The German statutory liability regime also uses the Austrian technique to shift these cases into the more general ambit of neighbourhood liability, but while Austria simply duplicated its rules into the special statute, Germany went the other way and included a pointer to the more general rule in its Genetic Engineering Act (GenTG), but coupled this with substantive restrictions, which in essence brings about a strict liability regime for the cases under survey here:[175]

164 § 36a par. 1 GenTG rules that any dispersal of GMOs constitutes a "significant impairment" within the meaning of § 906 BGB, which triggers the disperser's duty to compensate the ensuing losses irrespective of fault if the impairment of the neighbouring land "cannot be prevented by measures that are economically reasonable". According to § 36a par. 2 GenTG, "compliance with good professional practice" is by law deemed to be "economically reasonable". Furthermore, § 36a par. 3 GenTG prevents the assessment of first-time GM farming as "usual" by excluding the possibility to thereby consider whether the fields in question are cultivated with or without GMOs.

165 If the actual neighbour from whose fields the GMOs spread cannot be identified, all those from whom they may have originated will be jointly and severally liable for the full loss of the victim according to § 36a par. 4 GenTG unless their individual shares can be determined.

(e) Hungary

166 The Hungarian Gene Technology Act determines that (inter alia) harm resulting from the incomplete segregation of GM and conventional crops shall be governed by the general strict liability rule for dangerous activities (§§ 345–346 of the Hungarian Civil Code) unless the victim had previously consented to the GM farming of her neighbour in writing (in which case traditional fault liability would apply).[176]

(f) Italy

167 Even though special legislative measures addressing the loss scenarios under survey here have already been enacted in Italy, they have not yet been implemented for various reasons.[177] It remains to be seen whether the regime envisaged by the acts passed so far will ever make it to the practice stage.

168 Even if it does, it only addresses violations of the conduct foreseen by the applicable co-existence rules and therefore does not extend to cases of accidental admixture. Still, it would improve the position of the claimant at least insofar

[175] Germany no. 39 ff.
[176] Hungary no. 1 ff.
[177] Italy no. 1 ff.

as she would not have to prove the misconduct of the defendant, but it is up to the latter to exculpate herself.[178]

(g) Norway

169 § 23 of the Norwegian Act on Gene Technology[179] provides for strict liability for activities that fall under its scope and includes by way of reference the liability provisions of the Norwegian Pollution Act for the kind of damage foreseen here. These rules read together allow claims based upon the mere likelihood of causation (which is not generally the case in Norwegian tort law[180]). In addition, the link between the conduct as such and its harmful effect is presumed, so it is up to the defendant to prove that there is no causal connection between her GM farming and the economic loss of her neighbour.

(h) Poland

170 The Polish Act on Genetically Modified Organisms of 2001 includes in its Art. 57 a special rule introducing strict liability for damage to persons, property, or to the environment caused by the contained use of GMOs or their deliberate release into the environment. As the Polish report suggests, this rule already applies to the kind of cases envisaged here since the range of risks falling under this rule is not limited. A current draft statute which is intended to replace the said Act will include an explicit reference to GM crop cultivation.

171 Under the present regime, only force majeure is accepted as a valid defence, as is a causal influence of either the victim herself or of a third party, though the latter two must have been the exclusive cause of the loss in order to avoid liability under the GMO Act.[181] Abiding by the statutory rules of good farming practice will not aid the defendant either.[182]

(i) Slovakia

172 In Slovakia, a 2006 Act on genetically modified agricultural production provides inter alia that the deliberate release of GMOs constitutes a dangerous behaviour within the meaning of § 420a Civil Code, thereby submitting cases arising out of an involuntary admixture to a strict liability regime of a more general kind.[183]

(j) Switzerland

173 The Swiss solution is unique inasmuch as it provides for a channelling of strict liability towards the person or entity which has obtained the authorization to

[178] Italy no. 4, 13 ff.
[179] See its translation at Norway no. 1.
[180] Norway no. 11.
[181] Poland no. 7.
[182] Poland no. 20.
[183] Slovakia no. 2, 22, 25, 51 ff.

release the GMO into the environment. GM farmers or other players involved are therefore exempt from liability in the standard cases envisaged here. There is no presumption of causation, but the standard of proof is set at mere preponderant probability. The liability regime is considered to be *lex specialis* to the general rules of tort law, which therefore do not apply, not even alternatively.[184]

3. Compensation funds

(a) Compensation funds in legislation or already in force

(i) Belgium

- Walloon region[185]

In the Walloon region of Belgium, the scope of an already existing fund shall be expanded to also cover losses resulting from the adventitious presence of GM plants in conventional or organic crops. Payments into this fund ("subscriptions") will be collected from all producers of GM crops upon granting authorization to do so. The extent of each applicant's contribution shall be determined in light of existing insurance cover, if any, and according to individual risk factors[186] rather than some flat fee as foreseen in other countries.[187] Also other enterprises engaged in GM agriculture, including those dealing in the transportation and storage of GM plants, will have to contribute to the fund accordingly.[188] 174

The claimants will receive compensation for their economic losses (including "any other losses or costs directly linked to adventitious presence" of GMOs) as defined by Art. 5 of the draft decree.[189] The government has retained the power to introduce a lower threshold in order to exclude smaller claims. 175

The draft very thoroughly tries to address the problems arising from the involuntary spread of GMOs as comprehensively as possible, though at the expense maybe of predictability in practical application, but certainly of administrative costs, as the contributions to the fund shall be determined on an individual risk basis, and many aspects are left open for further legislative or administrative choice. 176

[184] Switzerland no. 7.
[185] See in the Annex infra at 668 ff.
[186] These risk factors include "whether or not GMPs are grown, whether or not work is carried out requiring contact with GMPs, the species grown, the surface area to be cultivated, the distance separating the genetically modified crop from land farmed by the nearest neighbouring produc ers, the coexistence on a farm of a GMP crop and non genetically modified crops …, and tak ing account of cultivation agreements which may have been concluded between neighbouring producers. Where a producer or operator poses no risk, the subscription shall be set at zero." (Art. 8 Sect. 2 of the draft).
[187] Cf. Denmark at II.3(a)(i) and Portugal at II.3(a)(iii).
[188] See Art. 11 of the draft.
[189] See infra 670 ff.

- Flemish region[190]

177 The Flemish region has recently presented a preliminary draft decree providing for a similar compensation scheme, equally expanding the scope of a more general fund to cover economic losses incurred by non-GM farmers due to the admixture of their crops with GMOs despite all due care taken by the GM farmers. According to this model, the latter have to pay a (currently still undefined) fee into the fund upon receipt of the authorization to grow GM crops. In contrast to its Walloon counterpart, the Flemish model does not (yet) foresee contributions by other stakeholders.

(ii) Denmark

178 Denmark was the first country to introduce legislation on a compensation fund for losses arising from GMO admixture.[191] The Danish model foresees – initially for a period of five years – that GM crop growers shall pay 100 DKK per hectare of GM cultivation into a fund which shall be administered by the Danish Plant Directorate, a division of the Ministry of Agriculture. Even though there seems to be no State participation other than in the administration of the fund at first sight, there may be at least an interim financing by the State: If in one given year claims should exceed the resources of the fund, they will nevertheless be satisfied. The excess monies will come from the State, but shall be recovered in the following year when the farmers' contributions will be adjusted accordingly.[192]

179 Non-GM farmers who suffer economic losses due to involuntary admixture but without contributory conduct in their own sphere[193] can claim compensation from the fund for the market price difference as well as for costs incurred for testing and sampling. Organic farmers can ask for further damages due to their special situation.[194] A lower threshold which the losses must exceed in order to be eligible for payments under the regime is foreseen, but yet to be set. Causation need not be proven strictly, a certain closeness in space and time between a GM field and the contaminated land suffices.

180 While the provisions governing the compensation fund currently do not yet address cross-border losses, the Danish government is currently negotiating with authorities of the German state of Schleswig-Holstein to achieve a bilateral solution for transboundary admixture.[195]

[190] See in the Annex infra at 665 ff.
[191] See Denmark no. 1 ff. and infra Annex 674 ff.
[192] See the State Aid Decision No. 568/04 on this scheme, p. 4.
[193] Denmark no. 5.
[194] See Art. 9 par. 3 of the draft: Recoverable are also losses which are "a consequence of require ments for conversion of organic areas or animals due to the occurrence of genetically modified material".
[195] As stated by Danish representatives at the SIGMEA Workshop on Legal Approaches to Coex istence in Sheffield on April 16, 2007.

The Danish model was submitted for state aid scrutiny and was subsequently cleared by Decision No. 568/04.[196] The main arguments raised by the Commission in support of upholding the regime were the limited duration of the present scheme, the fact that it is financed by those who are in charge of the cause (the GM farmers, though irrespective of any wrongdoing on their side), but also the present unavailability of insurance cover on the European market. 181

(iii) Portugal

The Portuguese compensation fund is designed for an initial period of five years (but may be extended thereafter).[197] It is limited to cases of adventitious presence of GMOs in conventional or organic crops above the labelling threshold of 0.9% only, while losses caused by the GM farmer's neglect of good farming practice has to be pursued on the basis of tort law.[198] Monies are collected via a green tax on seeds (€ 4 per 80,000 seeds, Art. 6), though the fund may generate further income from investing amounts not used, but also from a € 100 fee per application, which is withheld if unsuccessful (Art. 11). 182

Applicants must prove causation at their own expense (Art. 9 par. 5) and are only eligible if they have used certified seeds themselves.[199] Claims must be delivered to the DGADR, Directorate General for Agriculture, Rural Development and Fishing within the production (and contamination) year. As payments depend upon the means of the fund, compensation may be reduced proportionally if its resources should not suffice to pay out all approved amounts. 183

(b) Planned variations of compensation funds

(i) Finland

In Finland a compensation fund is being discussed which would address the issues under survey here.[200] As the concept stands, contributions shall be collected from both the State and the GM farmers (for the latter, calculated on the basis of the size of their GM fields). Payments will only be made for adventitious presence of GMOs in non-GM crops above the 0.9% threshold, not in cases where the admixture was the consequence of some faulty conduct. Proof of causation will be alleviated inasmuch as mere probability shall suffice. However, minor losses will not be compensated under the proposed fund. 184

[196] Http://ec.europa.eu/agriculture/stateaid/decisions/n56804_en.pdf.
[197] See Portugal no. 71 ff. and infra Annex 707 ff.
[198] See Portugal no. 82 for details.
[199] See Art. 8 of the draft for further eligibility criteria.
[200] Finland no. 5 6.

(ii) Germany

185 A 2004 proposal of the German *Bundesrat* envisaged a compensation fund with the participation of the State and economic stakeholders (including GM farmers, seed producers, seed importers or developers, and the biotech industry).[201] It would have applied to cases of adventitious admixture only, and only as long as the insurance industry would be ready to offer adequate cover. Most details were left open, however. The discussion is still pending, though seed producers have already declined to participate in such a fund.[202]

(iii) United Kingdom (England)

186 A statutory redress scheme is currently being considered by DEFRA[203]. In contrast to other jurisdictions, England is also considering to include seed producers as payors of compensation, with contributions collected either to an ex ante fund or to an ex post ad hoc regime.

187 Applicants would only need to prove admixture of their own crops with GMOs above the legal threshold of 0.9% without even alleging what the source thereof could be (apart from an exclusion of causes within their own sphere).[204] Compensation will most likely be limited to losses calculated on the basis of the said threshold.[205]

4. Other special solutions

(a) Pure state compensation

188 According to Directive 98/34/EC, Slovenia notified a draft Act on co-existence to the Commission which provides that the State shall fully compensate victims of adventitious presence of GMOs in conventional and organic crops. In the introduction to its filing, the government argues that:

> "if the Act and the planned implementing regulations … determine such measures for ensuring the coexistence of genetically modified and other crops that the adventitious presence of GMPs in other agricultural plants and products cannot arise (unless there is a failure to implement these measures correctly and consistently), the individual that cultivated the GMP in accordance with the Act cannot be held liable for adventitious presence".[206]

[201] Germany no. 26 ff.
[202] Http://www.bmelv.de/nn_750598/DE/04 Landwirtschaft/Gentechnik/Gentechnikgesetz. html. See also infra II.4(b)(ii) on the alternative German model introduced by the seed producers.
[203] Department for Environment, Food & Rural Affairs. See its consultation paper (infra 720 ff.) for details.
[204] United Kingdom no. 5, 11.
[205] DEFRA Consultation Paper (infra 720 ff.) no. 140 ff.
[206] Available at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft &inum 1305441. See also infra 713 ff.

In such cases, therefore, the State assumes "objective liability" (Art. 29 of the draft) and pledges to pay compensation on the basis of the market price difference, though subject to an assessment by a special committee. The remaining cases of admixture are referred to general tort law (Art. 28). 189

It is doubtful whether this draft will stand the test of state aid restrictions. In light of State Aid Decision no. 568/04,[207] one key aspect missing in the Slovenian proposal is a time limitation of the intended regime: In contrast to the Danish model, which was set up for a temporary period of five years only, the Slovenian draft statute does not foresee any such restriction. Furthermore, the compensation payments are taken out of the State's general budget without any specific contribution from the GMO farmers or seed producers. Therefore, the mere argument that insurance is currently unavailable (which is not even raised by the Slovenian government) does not seem to suffice in order to uphold the proposed regime. 190

(b) Voluntary compensation schemes[208]

In some Member States, stakeholders have teamed up to settle potential losses resulting from GMO admixture ex ante, either on a national level or at least on a local level. The Danish compensation fund model[209] also falls under this category, for example, inasmuch as it is based upon a decision-making process involving all concerned parties. In the following, some further models developed bottom-up rather than top-down will be presented. 191

What will not be dealt with in detail, however, is the obvious possibility for neighbouring farmers to jointly find a contractual solution for admixture problems ex ante. A GM farmer could enter into an agreement with her neighbours, for example, which arranges for regular testing at the expense of the GM farmer and/or includes a contractual duty for her to indemnify all potential losses (including, e.g., a definition of what kind of losses will be covered and how to assess them). Such individual solutions can hardly be anticipated by the legislator, however, unless farmers are required to submit evidence of such an arrangement with their neighbours as a prerequisite to obtain a permit to proceed with GM cultivation. 192

(i) The Netherlands

A unique solution from a European perspective can be found in the Netherlands.[210] "According to good Dutch tradition,"[211] all stakeholders[212] have agreed 193

[207] See infra II.7.
[208] See also the options considered in the DEFRA Consultation Paper (infra 720 ff) no. 162 164.
[209] Supra II.3(a)(ii).
[210] The Netherlands no. 48 50; infra 700 ff.
[211] The Netherlands no. 48.
[212] Biologica (Dutch Organic Farming Association), LTO Nederland (Dutch Organisation for Agriculture and Horticulture), Plantum NL (Dutch Plant Breeding Association) and Platform Aarde, Boer en Consument (Dutch Land, Farmers and Consumers).

upon a *Convenant Coëxistentie*[213] and thereby regulated problems of adventitious presence of GMOs in non-GM crops internally, even though parts of this contract are complemented by legislative and regulatory Acts.[214] This industry agreement regulates GM farming and foresees compensation to all who suffer losses despite adherence of their peers to these principles.[215] Their direct economic damage (including loss of turnover as well as costs of testing) shall be compensated by a compensation fund which is yet to be established. Payments into this fund shall come from the biotech industry, the seed producers, all farmers (including organic growers), and furthermore from those who process the products of GM agriculture. Initially, the State will also contribute. This model ensures that GM farmers who abide by these practice rules are immune from liability in tort, whereas violations of the said provisions have to be dealt with by the law of delict and thereby fall out of the contractual regime.

(ii) Germany

194 Another innovative project to achieve co-existence was launched in Germany in 2005.[216] With the support of Monsanto and Pioneer, a feed producer (Märka Kraftfutter GmbH) guaranteed to buy the entire maize production of farmers who grow maize conventionally within a distance of 100 meters of GM maize fields, irrespective of potential admixture. They also assumed the responsibility of testing this maize for GM presence, which clarifies whether the maize has to be labelled. The GM farmers participating in this model had to contractually commit themselves to adhere to the farming standards established by the seed producers.[217] The project was discontinued in 2007, however.

5. Costs of testing

195 In virtually all jurisdictions, the claimant has to finance the testing of her crops in advance, but may claim these costs ultimately from the defendant if the latter's liability is confirmed before a court of law.[218] It is a mere technical matter whether these costs are considered to be additional losses (which have to be added to the tort claim) or procedural costs (in which case they are adjudicated separately).[219]

[213] Agreement on Coexistence in the Primary Sector, November 2004.

[214] See, e.g., the Regulation on the Coexistence of Crops issued by the Dutch Commodity Board for Arable Farming (available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1255325).

[215] Violations of these rules and the consequences thereof fall outside the scope of this model and are left to tort law.

[216] Germany no. 28. On the results of the first phase of this model 2005, see http://www.transgen.de/pdf/erprobungsanbau/ergebnisse_maerka modell.pdf.

[217] Cf. the SCIMAC voluntary redress "charter" presented by the DEFRA Consultation Paper (infra 720 ff.) no. 162 164, which builds upon the same concept.

[218] Austria no. 51; Finland no. 9; France no. 31; Germany no. 63; Greece 82; Ireland no. 60; Lithuania no. 35; Luxembourg no. 65; Malta no. 10 (but wide discretion of courts in apportion ing costs); Switzerland no. 64; United Kingdom no. 66.

[219] Cf. Estonia no. 10; Finland no. 9; the Netherlands no. 47, 51; Portugal no. 127 128.

However, it is equally clear that the fees paid for testing where results turn out negative can generally not be recovered.

6. Cross-border issues

GMO admixture does not stop at national borders, which raises questions as to whose court will be competent to adjudicate over the case, and which law it shall apply to solve it. After all, in a cross-border case, there are at least two jurisdictions which compete to offer the applicable law, and choosing one of them may be decisive for the outcome of the case. 196

These issues are irrelevant when it comes to compensation funds inasmuch as their statute will typically decide about procedure and geographical scope autonomously. It is well imaginable, however, that the protective scope of such funds remains limited to their own respective jurisdictions, thereby excluding foreign claimants from access to payments. Current data available does not yet allow predictions on how these issues will be handled by the redress schemes that have already been conceived. 197

(a) Jurisdiction

The most important body of law governing questions of jurisdiction for the Member States of the European Union are the following instruments: 198

- the Brussels Convention[220] of 1968;
- the Lugano Convention,[221] which was signed twenty years later and was intended to offer the EFTA countries as well as other non-members of the EU the possibility to join a regime almost identical to the earlier Brussels Convention;[222]
- and finally (and nowadays most importantly) the Brussels I Regulation of 2001,[223] which was designed to replace the afore-mentioned Conventions.[224]

[220] Convention of 27 September 1968 on jurisdiction and the enforcement of judgments in civil and commercial matters, [1972] OJ L 299/32.

[221] Convention of 16 September 1988 on jurisdiction and the enforcement of judgments in civil and commercial matters, [1988] OJ L 319/9.

[222] Switzerland and Poland (at the time not yet an EU member) have joined this convention, whereas Liechtenstein is the only EFTA State which did not accede to this regime. The Lugano Convention therefore now applies if the defendant is domiciled in Iceland, Norway, or in Swit zerland.

[223] Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, [2001] OJ L 12/1.

[224] Denmark was not bound by the Regulation for lack of participation in Title IV of the EC Treaty, but has agreed to effectively apply the regime of the Regulation as it stands subject to certain exceptions and reservations. See the Agreement between the European Community and the Kingdom of Denmark on jurisdiction, recognition and enforcement of judgments in civil and commercial matters, [2005] OJ L 299/62.

199 The following provisions of the Brussels I Regulation (and only that regime shall be dealt with in the following section)[225] may govern the kind of claims we are concerned with in this study:

> Art. 5: "A person domiciled in a Member State may, in another Member State, be sued …
> 3. in matters relating to tort, delict or quasi-delict, in the courts for the place where the harmful event occurred or may occur; …"
>
> Art. 22: "The following courts shall have exclusive jurisdiction, regardless of domicile,
> 1. in proceedings which have as their object rights in rem in immovable property or tenancies of immovable property, the courts of the Member State in which the property is situated. …"

200 For the kind of cases under focus here, only Art. 5 par. 3 is relevant, even though Art. 22 could well be applied to the above-mentioned cases of private nuisance, to the extent a jurisdiction considers these as property actions, arising not from a delict but from the right *in rem* of the landowner whose crops have been contaminated. However, in a recent ruling, the ECJ has clearly cut off that path by stating that such claims are not governed by Art. 22, which leaves them within the domain of Art. 5 par. 3.[226]

201 The "harmful event" in Art. 5 par. 3 is interpreted extensively by the ECJ, including not only the place where the damage occurred, but also the location where the harmful cause was set, thereby effectively allowing the claimant to choose between the two (ubiquity principle). Therefore, if GM seed from a field in country A is blown onto land in country B causing damage, the victim can file a tort claim in either country at her own choice.[227]

202 As an exception, however, this flexibility is restricted if compensation is sought for pure economic loss only: In such cases, the claimant cannot sue at the place of her domicile simply because her assets which have been reduced are centred there if the effect of the harmful conduct has already had direct consequences in another country.[228]

[225] The corresponding provisions of the Brussels Convention (Art. 5 par. 3, Art. 16 par. 1) and the Lugano Convention (Art. 5 par. 3, Art. 16 par. 1 lit. a) contain almost the identical language, the only significant difference being a lack of explicit reference in Art. 5 par. 3 to events which have not yet occurred, but "may occur" in the future.

[226] *Land Oberösterreich v. ČEZ*, ECJ 18.5.2006 C 343/04. Due to the timing of the facts underly ing that case, the Brussels Convention and its Art. 16 were at stake (cf. fn. 225), but in light of the identical wording and underlying substantive motivations, it is clear that this ruling cor respondingly applies to the new Regulation as well.

[227] *Bier v. Mines de Potasse*, ECJ 30.11.1976 C 21/76, [1976] ECR 1735: A French company pol luted the Rhine water, causing harm to a flower producer in the Netherlands. The Court held that the victim could sue both in the Netherlands (where the damage occurred) as well as in France (where the cause was set, i.e. the water discharged into the river).

[228] *Kronhofer v. Maier et al.*, ECJ 10.6.2004 C 168/02, [2004] ECR I 6009. The scope of this rul ing is often overstated by claiming that the occurrence of pure economic loss in general does

Furthermore, consequential losses in a country other than where the direct harm occurred do not justify the jurisdiction of courts at that additional location:[229] Therefore, the fact that the market of the conventional farmer whose fields in country A were contaminated lies in country B (so that her losses effectively "occur" there) does not shift jurisdiction onto the latter. 203

(b) Choice of law

(i) Admixture cases under current conflict of laws regimes

At present, jurisdictions are divided when it comes to determining which law applies to a cross-border tort case. Even though all adhere to the so-called *lex loci delicti commissi*, it is exactly under dispute where the delict was committed, which comes down to the same issue as just discussed at the occasion of the court's jurisdiction: Is it the place where the harmful event was completed (i.e. the cause was set),[230] or is it the location where the damage occurred instead?[231] Some opt for either the former or the latter, others allow the court[232] and/or the claimant to choose,[233] yet others seem to be internally undecided.[234] In Austria, for example, the connecting factor for the general rule applicable to tort law conflicts is the harmful conduct, whereas the special rule for GMO liability focuses on the place where the damage occurred.[235] 204

A separate analysis may apply if the claim is based upon the law of property, which is an alternative path to compensation in some jurisdictions.[236] If the applicable rules of conflict of laws follow a structural analysis rather than a functional approach, the *lex rei sitae* will govern, which means that the connecting factor is the location of the land that is protected.[237] In most cases, this will coincide with the place where the damage occurred, so the applicable law will be the same in those jurisdictions whose tort law conflicts rule at least allows focusing on that factor.[238] 205

not suffice. This was not the issue before the court, where the plaintiff had lost monies that he had entrusted to the defendants in a different country for speculation (which obviously failed). In *Kronhofer*, the pure economic loss had already occurred elsewhere, and the Court only rejected jurisdiction at the plaintiff's domicile where the loss ultimately (but indirectly) lay.

229 *Dumez France v. Hessische Landesbank*, ECJ 11.1.1990 C 220/88, [1990] ECR I 49.

230 Austria, no. 54; Latvia no. 23; Poland no. 102; Portugal no. 141 ff. (subject to exceptions); Spain no. 84; Sweden no. 51 (but exception if Nordic Convention applies); Switzerland no. 69 (though place of damage if foreseeable); United Kingdom no. 69.

231 Austria, no. 52; Luxembourg no. 68; Malta no. 37.

232 Czech Republic no. 98 ff.; France no. 36.

233 Estonia no. 59; Finland no. 62; Germany no. 65; Hungary no. 48; Italy no. 51; Lithuania no. 37; Norway no. 51 (for inner Scandinavian cases). See also Slovenia no. 52.

234 E.g. Denmark no. 58; Greece no. 90 92; Norway no. 54. See also Belgium no. 66.

235 Austria no. 52.

236 Supra I.3(e)(iii) (in particular no. 68).

237 See, e.g., Austria no. 53; Germany no. 70; Portugal no. 146; cf. UK no. 69.

238 Supra at fn. 231 and 232 ff.

(ii) Admixture cases under the Rome II Regulation[239]

206 The differences with respect to the choice of the applicable tort law will hopefully be reduced once the Rome II Regulation becomes fully effective on 11 January 2009, which shall fill the present gap in European law with respect to the conflict of laws in extracontractual relations.[240]

207 The general rule under this regulation is the *lex loci damni*, which is a variant of the *lex loci delicti commissi* focussing on the occurrence of the damage rather than its cause. The formula used to solve the mentioned differences between the Member States in this respect reads:

> Art. 4. (1) Unless otherwise provided for in this Regulation, the law applicable to a non-contractual obligation arising out of a tort/delict shall be the law of the country in which the damage occurs irrespective of the country in which the event giving rise to the damage occurred and irrespective of the country or countries in which the indirect consequences of that event occur. …

208 In light of the ECJ's position taken with respect to jurisdiction,[241] it is most likely that this rule will also be interpreted to govern compensation claims based upon property law rules, since the same policy reasons apply.

209 Art. 7 deals with environmental liability, which expands the general rule insofar as it allows the victim to choose between the default applicable law and the law of the country from where the harm originated. The rule applies to "environmental damage", which either in itself or as a trigger of ensuing personal injury or property damage must have led to the "non-contractual obligation" for which the applicable law is sought. "Environmental damage" is not defined by the Regulation itself, but merely by its recital 24, which speaks of any "adverse change in a natural resource, such as water, land or air, impairment of a function performed by that resource for the benefit of another natural resource or the public, or impairment of the variability among living organisms". It will remain to be seen whether the rather narrow wording of Art. 7 will be extended to include at least some of the cases considered here.

7. State aid issues

210 While it is beyond the scope of this study to analyze and evaluate whether and to what extent the financial participation by a Member State in a national compensation scheme might constitute state aid within the meaning of Art. 87(1)

[239] Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non contractual obligations (Rome II), [2007] OJ L 199, 40 (available at http://eur lex.europa.eu/LexUriServ/site/en/oj/2007/l_199/l_19920070731en00400049.pdf).

[240] The Regulation will not apply in Denmark, however.

[241] Supra at fn. 226.

of the EC Treaty, the issue as such shall nevertheless be raised in this context, if only as a pointer to a further set of problems.

211 The Danish compensation fund system described above[242] has already been scrutinized by the Commission.[243] The Commission started its assessment of the scheme by finding that the measure was attributable to the State since the fund was financed with an obligatory fee whose use is determined by the State. It was also clear that compensation paid by the fund would benefit both non-GM farmers (by enabling them to collect compensation they would otherwise not have received) and GM farmers (who can spread the risk of individual liability among others who do the same). Since the measure would benefit certain undertakings, it was also considered selective. The measure was therefore held to constitute aid within the meaning of Art. 87(1) EC Treaty. The provisions concerning aids to compensate losses in agricultural production[244] were not applicable because the damage in question could not be regarded as an exceptional occurrence within the meaning of the Guidelines. However, in light of the clear EU objective to promote co-existence, the fact that GM farmers finance the scheme and in the absence of suitable insurance products on the market which could substitute the measure envisaged by Denmark, the Commission was convinced that it was necessary as a temporary measure until the insurance industry was in a position to take over the risk management function. It was therefore concluded that the measure contributed to the structural development of agricultural production and was therefore considered to be compatible with the common market according to Art. 87(3)(c) EC Treaty.

212 As a rule of thumb, therefore, one could conclude that the Member States under certain conditions may promote co-existence by setting up and financing compensation schemes whose purpose it is to alleviate the concerns of farmers who want to continue conventional or organic agriculture but fear that they may suffer losses if one of their colleagues should decide to switch to cultivating GM crops.

213 The aspects of the Danish regime which the Commission deemed particularly crucial in order to qualify for an exception under Art. 87(3)(c) EC Treaty were that compensation was possible even in cases where none could be claimed under civil law, as well as the temporary character of the scheme, limiting its validity in time to the moment when suitable products are available on the insurance market. This possibility is not as illusory as it may seem: After all, one of the major obstacles for insurers in their bid to offer adequate products is the lack of experience with certain risks. An alternative compensation model that gets GM farming started on a broader scale will allow the market to gain such experience, which may be decisive for the insurance industry.

[242] Supra II.3(a)(i).
[243] State Aid Decision no. N 568/04.
[244] See the Community Guidelines for State Aid in the Agriculture and Forestry Sector 2007 to 2013, [2006] OJ C 319/1, p. 17 ff.

214 Another aspect of the Danish model stressed by the Commission was the fact that the scheme shall ultimately be financed by the GM farmers themselves. This raises doubts as to whether some other possible involvement of the State may be looked at equally favourably, for example a state guarantee backing up an insurance scheme. This question would have to be assessed by weighing the benefits of the scheme to sectoral developments against possible distortion of competition.

III. Options for the future

1. Range of desirable solutions

215 The current state of the law in all Member States already shows such a wide range of options that hardly any further variety is imaginable. Anything from traditional fault liability to no-fault compensation schemes can already be found. These are all, per se at least, at first sight desirable, if only for the very jurisdiction that introduced it.

216 In light of this undeniable diversity, one is inclined to ask whether it should be levelled out by harmonizing the laws at least with respect to certain aspects of such cases. An answer thereto will be sought in the following section.

217 Before this, let us have a quick glance at some of the key issues that need to be resolved if a uniform compensation model were to be developed,[245] without prejudicing for the time being whether this is feasible and/or desirable at all.[246] The list will not (and cannot be) comprehensive, as the problems are too manifold.[247] The items chosen shall merely give some idea of the complexity of the decision-making process that is inevitably needed for such a task.

218 Some aspects would have to be addressed irrespective of the type of regime chosen. One key question would be of course whether all economic losses of non-GM farmers shall be compensated or just parts thereof. This could be split into subtopics such as the importance of the 0.9% (or any other applicable) threshold (compensation only in the case of a higher degree of admixture?)[248] or the desirability of caps and/or thresholds (which, if answered in the affirmative, necessarily leads to the follow-up question of where exactly to set these limits)[249].

219 The biggest challenge for all compensation regimes is to define the trigger for payments, and this invariably includes an analysis of causation. How can this link be established, and who has got to prove it? The latter question is easier to

[245] See also the checklist supra I.2(c).
[246] See in particular infra III.2.
[247] First party insurance, ad hoc and other compensation regimes will be disregarded during that brief overview, but obviously need to be considered as further options with peculiar problems.
[248] See also infra no. 257.
[249] See the critical analysis of financial limits by *M. Faure/A. Wibisana*, Economic Analysis (supra 565 f.) no. 89 91.

answer – it is hard to imagine that any system would relieve the claimant entirely of that task. However, from that decision onward, the situation gets less clear: What percentage of probability must the claimant prove (the range going from 51% to 100%), and are there any ways to soften this duty, in particular by way of factual presumptions or even a reversal of the burden of proof after a primary fact has been established?[250]

220 If the political preference should be in favour of resolving disputes between neighbouring GM and non-GM farmers in tort law proper, one would need to choose between a fault or strict liability model or any of the various hybrids between those two extremes, as well as a broad range of details. These choices would need to be made with an eye to the insurability of such liability risks.

221 If, on the other hand, a compensation fund were to be recommended as a standard solution for all Member States, the various options to finance the fund need to be thoroughly analyzed (including the manifold ways to adjust the fund to changing needs over time), as well as its administration (both with respect to the institution in charge as well as the procedure). One crucial choice will concern access to the fund for those whose loss was caused by the fault of another (and who therefore could claim compensation under tort law). At present, the scope of most funds is limited to cases of accidental admixture only. However, it is not entirely clear why those who seem to deserve easy access to compensation more than others are excluded for that reason.[251] After all, this would alleviate them of the risk of the tortfeasor's insolvency and shift it to the fund (which in turn could pursue the claim upon subrogation). On the other hand, awarding damages for negligently or even intentionally disregarding good farming practice under the regular tort system may provide incentives to abide by such rules, even though these could be mirrored in a compensation fund scheme by way of a recourse action against GM farmers who were at fault when causing the loss covered by the fund. Another feature of the fund which would need to be decided upon concerns its borderlines to the insurance market, which can be pinned down to the question whether the fund shall be set up only temporarily or on a permanent basis.[252]

2. To harmonize or not to harmonize?

222 Typically, those countries who opted in favour of specific legislation did so in order to make access to compensation easier and to shift the risks of GM farming onto those who decide to go ahead with it. Other countries have (whether purposefully or not) decided to maintain their traditional tort law rules with all the complications indicated earlier.

[250] See supra I.3(d)(iii).
[251] See also Finland no. 8.
[252] As the economic analysis shows, a merely temporary fund is preferable as long as the private insurance market does not offer adequate cover: *M. Faure/A. Wibisana*, Economic Analysis (supra 571 ff.) no. 110 ff.

223 Is such national diversity really desirable, or do we have to strive for harmonization in this field?[253] Harmonization as such can never justify itself, though – the existence of differences between the Member States per se is not sufficient reason to interfere with their national legal systems. After all, the differences between them may at least in part be triggered by diverse factual backgrounds, be it agroeconomic, climatic, market, or any other factors which do not change simply because the legal response thereto is altered.

224 The problem cannot be addressed, however, before resolving the fundamental question whether harmonization is feasible at all. If it were impossible, there is no point in deciding whether we want it or not.

(a) Degree of harmonization

225 One key question to be asked is how far a possible harmonization program should go. Obviously, this question is inseparably intertwined with the following ones that focus on the feasibility and desirability of the various options. A smaller degree of harmonization may be easier to achieve (both technically and politically) than the replacement of all existing redress schemes with a uniform model imposed from above. Nevertheless, the degree of interference with the national legal systems as they stand is per se rather policy-neutral, which is why these possible solutions will be addressed at this point.

226 To begin with, it is clear that there is no one-stop solution in response to the diversity of the laws of the Member States. Apart from no action at all, which is certainly one option that should not be disregarded just because it happens to be the solution with least activity at Community level, the other extreme at the opposite end of the range would be complete harmonization of all aspects of compensating losses arising from adventitious presence of GMOs in non-GM crops. The latter would require an exclusive regime to be set up which does not allow any deviations or alternative paths on the side. So if, say, the introduction of a European compensation fund were the model of choice, any alternative action in classic tort law would need to be ruled out entirely to the extent they overlap with the claims covered by the unified regime. This would presuppose that the latter is conceived in a way that allows no way out,

[253] The EESC (fn. 102, 4.7) has already made up its mind:
"4.7 Civil liability provisions must fully cover compensation for financial damages
4.7.1 The reproductive capability of GMOs and the fact that their unwelcome presence can cause financial damage to those affected makes it necessary to adapt the civil liability provi sions in Member States to ensure that such damages are covered.
4.7.2 The civil liability provisions should ensure that those involved are liable only to the ex tent that they are able to prevent possible damages. Liability for keeping to good professional practice and any further expenses of the supplier of a GMO should rest with the users of that GMO. Conversely, the liability for damage occurring despite good professional practice being observed should rest with the supplier. If appropriate, the Community rules on legal liability should be adapted accordingly.
4.7.3 Suppliers or users of GMOs should be able to prove their ability to cover, whether through insurance or by similar means, any liability for damages that arise from their activities."

which in turn means that it must address all aspects of the claim as precisely as possible, from merely administrative points such as the procedure for filing and handling claims to the more fundamental question of financing, from a description of the requirements for compensation to the extent of compensation, how multiple claims are dealt with, how the regime handles cross-border issues (and also in this respect, forum shopping must be ruled out), and so on. However, one should note from the outset that previous efforts at European level to achieve complete harmonization in the field of tort law have invariably proven to be impossible to realize.[254]

227 A lesser degree of harmonization could be achieved by identifying a compensation model for all Member States which leaves certain aspects open for them to regulate individually. Depending on which points fall under the latter category, such a partial solution can be more or less far-reaching. As a rule of thumb, however, the more that is left to individual solutions, the less desirable such a model is from an EU perspective if uniformity is the ultimate goal.[255] While it will inevitably lead to different treatment of similar cases in the Member States, this may not necessarily be in conflict with the intention to proceed with harmonization in the first place. After all, some aspects of the claims will be handled in a uniform way, and a political assessment of the problem may lead to the conclusion that only those aspects are deemed crucial and worthy of harmonization. Identifying these elements will be critical, however. One (but certainly not the only) key aspect will be how to deal with the requirement of causation, for example, which is an essential component of any imaginable compensation mechanism.

228 A very mild form of harmonization (if at all) would be to offer a merely optional model for the Member States to consider without any need for them to implement it. It is questionable, however, whether such a solution deserves that name, since it will most likely not abolish the differences between the various regimes existing altogether, though maybe some Member States may indeed adjust their systems accordingly. From a cost-benefit-analysis perspective, one may wonder, however, whether establishing such a regime is really needed in light of the fact that the various options currently chosen by the Member States already constitute a full catalogue of possible schemes, and the pros and cons of each of them are clearly visible for those jurisdictions which are considering a re-evaluation of their own system.

229 This has to be differentiated from setting a minimum standard that shall apply throughout Europe.[256] The policy choice could be, for example, that non-GM

[254] Cf. infra at no. 238.

[255] Cf. *J. Smits*, European Private Law: A Plea for a Spontaneous Legal Order, in: *D. Curtin et al.* (eds.), European Integration and Law (2006) 55, 62: "Another reason for the ineffectiveness of the acquis is that almost all private law legislation aims at minimum harmonization. This implies that the Member States can establish more stringent provisions to protect consumers, going be yond the directive itself. The effect of this is that companies are still confronted with divergent legislation among the Member States and may still be deterred from doing business elsewhere."

[256] But see fn. 255.

farmers deserve compensation for at least the immediate harmful effects of contamination, and that it should be more or less readily available to them. Further conditions or aspects could be included in defining that minimum standard. This would immediately change the status quo in light of the fact that some legal systems do not yet reach that benchmark. However, a common minimum standard is also not justified per se – again, one needs to ask whether such an interference, even if less substantial than others listed here, is necessary and desirable from a political point of view.

230 An alternative target that could be set would be that the Member States should regulate liability in such a way as to facilitate insurability of such risks, but leave the tools to reach that goal up to them to choose. Denmark has, for example, conceived its compensation fund regime in order to temporarily fill a gap until insurance is available, which at the same time may indeed be the trigger which makes the risk calculable and thereby insurable.[257]

231 Yet another option could be to conceive a system which only deals with cross-border contamination. However, the key argument against a similar plan with respect to environmental liability was that a "transboundary only system would … lead to subjects being treated completely differently within one Member State, since some, who happen to be involved in a case of transboundary damage, could be liable under the EC transboundary only regime, whereas others, who are conducting the same activity in the same country and causing similar damage, could walk free if the national regime happened not to cover such a case".[258] For lack of equal treatment, therefore, this option certainly deserves the label "least desirable" within the range of alternatives just mentioned, though the choice of either one of them will invariably discriminate against other problems of a similar kind that have not yet been addressed by Community action.[259]

232 A cross-border redress scheme such as just considered has to be differentiated from the question of how Member States respond to cross-border issues in the context of their national regimes. While the former solution would offer a substantive answer to the claimants, another way to strive for harmonization would be to merely tackle the jurisdiction and conflict of laws issues. However, both of the latter concerns either have already been answered[260] or are about to be solved[261] on a more general level, so coming up with a separate scheme would require very fundamental justification.

[257] See supra no. 181 and 213.
[258] White Paper on Environmental Liability, COM(2000) 66 final, 9.2.2000, 25 26 (available at http://ec.europa.eu/environment/liability/white_paper.htm).
[259] Cf. infra no. 259.
[260] Supra II.6(a).
[261] Supra II.6(b).

(b) Feasibility of harmonization

Technically speaking, anything goes. As long as the Community's authority to legislate in this field is not considered to be limited with respect to the action envisaged, possible measures can include the full range of options just listed. 233

However, from a legal policy perspective, the answer to the question whether one of those solutions really helps to reach the desired goal is not as straightforward, particularly not in light of the fact that one always needs to assess what side effects any measures may have on the legal systems of the Member States, and whether these are so critical that the intended action needs to be reconsidered. 234

The starting point for this inquiry is whether the Member States are prepared for the kind of Community action that is envisaged. 235

In light of the broad range of plant varieties, each with a peculiar risk of gene flow, the insurance report doubts "that one comprehensive insurance solution can be found for GMO crop."[262] However, it may well be that this biological diversity is still easier to overcome than the differences between the legal systems. 236

Throughout history, European jurisdictions have developed different claims cultures and different compensation cultures. Some are more open towards the idea of national solidarity and collective risk-sharing, others still put considerable emphasis on a more individualistic approach. Seen from a distance, all tort laws at least seem to pursue the same goal, and all apparently use comparable tools. The closer one looks, however, the further apart they are, and it is the details that may well make the difference.[263] All jurisdictions require some causal link between the harmful conduct and the loss, but the way to convince the judge thereof is longer and more difficult in some countries than in others. All offer compensation if someone is hurt through the fault of another, of course, but some let the claimant prove it, others presume it and let the defendant refute it. Some jurisdictions are more open towards strict liabilities, others are very restrictive. 237

These differences need to be considered and taken seriously if Community action is to be taken in this field. Otherwise, the so-called harmonized regime will lead a life of its own, either hardly applied in practice at all due to better options in the internal laws of the Member States,[264] or, if effective, causing 238

[262] *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 580) no. 13.

[263] See supra I.3.

[264] Cf. the fate of the Product Liability Directive, where the second report on its application more than fifteen years after its adoption had to admit "that only little information about the applica tion exist and statistics, if available, are not complete". COM(2000) 893 final, p. 8. The third report is much more optimistic, though not quite understandably why: See COM(2006) 496 final, p. 6.

difficulties due to frictions with existing national concepts.[265] After all, the use of at least some basic general concepts such as damage and causation seems to be inevitable for any imaginable harmonized redress mechanism, and in light of existing dissimilarities between the Member States even at this fundamental level, either differences in applying the desired uniform standard or inconsistencies on the national level with local standards seem unavoidable. Attempting to find a uniform standard for indemnifying losses caused by gene flow may thereby risk an admixture of tort law regimes even within one single Member State. The outcome of academic efforts to define a standard for harmonizing tort law as a whole such as the "Principles of European Tort Law"[266] needs to be consulted in this respect in order to avoid problems of the kind experienced with previous attempts to interfere with national tort laws, carried through with an eye solely to the narrow focus of the matter.[267]

239 If we look at the present-day solutions to be found in the Member States, at least some of them seem to be the unique results of a unique legal, social, and economic environment, which as such is not transferable to other Member States.

240 Just think of the Dutch *Convenant Coëxistentie*,[268] which per se is certainly a very reasonable model,[269] but it is hard to imagine how this could be taken over by any other country. As the country report rightly states, achieving solutions in a bargaining process of the stakeholders is a "good Dutch tradition,"[270] but it is hard to predict whether such a tradition can be initiated elsewhere as well. Too many factors come into play here, including (but not limited to) the market situation, the structure of the insurance industry, the interplay of the government with interest groups and the like.

241 The optimistic statement at the beginning therefore has to be revised if the feasibility of harmonization is assessed in a more differentiated way. Full harmonization is not feasible at all, unless a uniform redress scheme is introduced which excludes all detours, backdoors and alternative ways to compensation in the Member States. Even if that should be the solution envisaged, one needs to bear in mind that any such singular regime would disrupt the harmony of the Member States' legal systems internally, which at least indirectly will also

[265] Cf. *J. Smits* (fn. 255) 67: "Harmonization means that European and national elements within one legal system form a consistent whole and, if there is no smooth cooperation between the two, it is hard to categorise harmonization as successful."

[266] *European Group on Tort Law*, Principles of European Tort Law (2005). See also http://www.egtl.org/Principles.

[267] The problems of the Product Liability Directive, for example, are evidenced by the three reports thereupon issued so far (cf. fn. 264) and the ECJ rulings in recent years, e.g. C 52/00, *Commission v. France* [2002] ECR I 2553, and C 154/00, *Commission v. Greece* [2002] ECR I 3879.

[268] Supra II.4(b)(i).

[269] See *M. Faure/A. Wibisana*, Economic Analysis (supra 535) no. 10, on economic arguments in favour of contractual solutions.

[270] The Netherlands no. 48.

have a bearing at the European level. Any less ambitious degree of action at Community level will not lead to harmonization in the narrower sense of that word, as the implementation and subsequent application of such an effort will not necessarily lead to uniform solutions. However, that per se should not be seen as a deterrent to interfering with the existing situation, it just needs to be borne in mind in order to correctly assess the impact of any such plan when deciding upon it.

(c) Desirability of harmonization

(i) Is the internal market really affected by such diversity in any negative way?

242 The impact of local compensation schemes on the internal market is often overstated, as is the preventive effect of a tort law rule in general, which plays the key role in this respect, even though the two need to be looked at separately: Even if a liability regime should have a preventive effect, this does not necessarily mean that it deters foreigners from submitting themselves to it by doing business in that legal system – they may simply choose to pursue their activities with due consideration of the potential consequences thereof if something goes wrong.

243 While there are quite important differences between the laws of delict in all Member States, on average they do not reach far enough to play such a decisive role in the choice of market participants as does, say, the "quantum leap" to the U.S. tort system, the latter being marked not only by the theoretical availability of punitive damages,[271] but in particular by substantial procedural advantages for victims to pursue their claims (starting from contingency fee arrangements with attorneys to the manifold ways to aggregate claims, from extensive possibilities to obtain evidence during discovery to the role juries play in court practice).

244 Local market conditions in the narrower sense (such as the costs of human labour, land, or of raw materials, the availability of subsidies, the regulatory framework for the branch of industry concerned etc.)[272] seem to be much more influential than the likelihood of losing a tort case, which in turn also quite significantly depends upon the duties of care established by administrative law. Besides, the better the rules prescribing good farming practice (coupled with effective surveillance of compliance), the lower the risk that damage will be caused, which is one of the reasons why such rules were introduced in the first place.

[271] This red rag of European enterprises has a much more faded colour, though, in light of statistics underlining the very limited practical importance of this head of damages.

[272] Cf. *M. Brülhart* (supra fn. 25) 128; *J. Smits* (fn. 255) 66 ("[T]he importance of law should not be overestimated either."). See also *M. Faure/A. Wibisana*, Economic Analysis (supra 550) no. 50: "[A] much more important role will in practice be played by safety regulation than prob ably by liability rules, at least as far as prevention is concerned."

245 The less predictable losses and/or duties to compensate them are, the more likely market participants will have a distorted perception of the risk, and this is even more so when emotions tend to at least influence (if not prevent) rational decisions.[273] If that is the case, the risk will either be over- or underestimated, thereby preventing at least to some extent the proper interplay of rules regulating the market ex ante with those responding ex post to failures and defects on the market.

246 The decisive factor in GMO agriculture is the openness or hostility of a legal system towards such technology in general, which is reflected by more or less lenient buffer zone definitions and other regulatory choices. Tort law typically only mirrors the attitude of the respective market towards GM farming. Liability rules are therefore generally more a symptom and not the cause of market conditions attracting or deterring new entrants.

247 Only extreme variations may have a more noticeable effect on mobility in the internal market, such as the complete unavailability of tort law protection in certain fields, or – at the other end of the spectrum – a very harsh liability regime which effectively makes it impossible (or too expensive) to obtain insurance cover.

248 Above all, one may wonder whether mobility in the internal market is really of major concern to farmers. Those who have their fields on or near national borders may be exposed to foreign legal rules anyhow, even without leaving the country (though the seeds or pollen from their fields may).[274] Undoubtedly, though, seed producers, for example, who operate internationally will at least be indirectly affected by tort law restrictions in one state which effectively amount to a market barrier there. However, this does not lead to "legal uncertainty"[275] at all as long as the rules governing choice of law are clear, and they will (or at least should) be, at latest once the Rome II Regulation is in force.[276]

249 Even if one reached the conclusion that diversity does affect the internal market in a negative way, one should still ask the necessary (but often forgot-

[273] See also *W. van den Daele*, Special features of the public debate on the risks of transgenic crops The dynamics and arenas of a modernization conflict, in: *MunichRe* (ed.), 5th Interna tional Liability Forum Munich (2001) 25 at 56:
"Risk regulations even under the precautionary principle select among fears; they take only fears into account that can be based upon some 'reasonable' assumption of possible damage. Risk is a formula for justified fears. However, fears are emotional facts, and they do not need to be justified in order to be real. To be told that your fears are not justified will not necessarily reduce these fears; in fact, it may instead propel mistrust in the authorities who tell you this."

[274] See II.6.

[275] This is presumed (but not explained) by the European Economic and Social Committee (fn. 102) 3.7.3.

[276] See II.6(b)(ii). This cannot avoid potential uncertainties with respect to losses incurred at both sides of the borders to non EU countries, but this problem cannot be solved by an EU internal liability regime anyhow.

ten) follow-up question whether a harmonized regime adds any improvement to that situation. It is well imaginable that harmonization makes the situation even worse, if only by causing frictions with existing national rules that continue to apply, or by replacing non-uniform rules with harmonized ones whose application in the Member States turns out to lead to even more differing solutions. If this is not ruled out, the search for factors affecting the internal market in support of legislative action at European level will inevitably be incomplete and unbalanced.

Furthermore, harmonization would have to go beyond setting a mere minimum standard, otherwise the problem of diversity will persist (although changing this need not necessarily be the political intention after all).[277] 250

Ultimately, the question of how much the internal market is indeed affected by the existing diversity of compensation models cannot be answered by a legal study. It would require further research from an economic and sociological perspective, including a survey among market participants.[278] 251

(ii) Should the Community interfere with present-day solutions?

The current situation in the Member States reflects their outlook on GMOs. The various solutions offered for losses caused by gene flow are just one indication of the overall attitude. They are all based upon a weighing of interests, and the choice of tools speaks for itself. Far-reaching tort claims against GM farmers without any effective possibility for them to take out insurance can be contrasted with state-backed compensation funds that are designed to spread these farmers' individual risks evenly. Selecting one model over the other is a policy choice, and it is not determined by any inherent feature of the respective legal system in general or its tort law in particular. 252

The key question is therefore whether the EU wants to give a boost to GM farming in Europe, and whether this has to happen in all Member States alike. This is clearly not a legal question, and it is certainly not our task here to find the answer thereto. 253

One may well ask, however, whether this answer needs to be found in the tort law arena at all. Promoting GM production can be achieved by other, more direct means, and if the problem is rooted in the general public's fear of or mistrust in genetic engineering, tort law cannot offer any way to overcome that fear or to establish confidence. 254

[277] Cf. the citation by *J. Smits* supra fn. 255.

[278] But see the outcome of an economic study submitted in preparation for the Environmental Liability Directive, which in line with the above reasoning concluded that "[i]t seems unlikely … that existing liability systems in EU Member States are currently creating any significant distortion of trade": *ERM Economics*, Economic Aspects of Liability and Joint Compensation Systems for Remedying Environmental Damage (Summary Report), Annex 2 to the Commission's White Paper on Environmental Liability (fn. 258) 37, 39.

255 However, even though different ways to compensate the losses envisaged here are just the symptoms and not the cause, finding a cure for the latter may also require a look at the former.

256 If the political choice should be in favour of at least reducing differences between the Member States' ways of handling losses caused by admixture, a clear starting point lies beyond the domain of compensation rules. It is an essential prerequisite for all legal systems to identify the proper yardstick for evaluating the conduct of the GM farmer, which is not only essential for a fault-based claim: It is also crucial for the compensation fund models presented above[279] to know whether the claimant could also recover in tort law – most of them are only designed for cases of accidental admixture, and even if not, it is still decisive whether the funds will have a recourse action against a tortfeasor by way of subrogation. Consequently, defining good farming practice is a fundamental task which needs to be fulfilled before any further thought is given to the follow-up issue of how to respond to a situation where someone does not adhere to that standard or causes loss despite full compliance.[280] If we look at the substantial differences in the definition of buffer zones alone, it is obvious that there is yet a long way to go before uniformity can be achieved in this respect.

257 A further crucial point is more focused on the definition of the damage which triggers the compensation mechanism.[281] Above all, it is essential to decide whether claimants shall also recover losses caused by admixture even though it remains below the 0.9% threshold. The losses as such may not be talked away, but the question is whether the legal system shall indemnify them. Such choices need to be made throughout tort law,[282] and they certainly need to be made here. Again, the answer is not predetermined by the fundamentals of tort law – it is the result of balancing the interests involved, and as in any weighing process, the outcome is not entirely predictable. Setting a standard here could resolve some uncertainties which may account at least for some differences between the Member States.[283] This applies correspondingly to seeds, where a clear threshold is currently lacking altogether.

258 How far harmonization shall go[284] is yet another political choice, as is the selection of the preferable model.[285]

259 One discomforting question still needs to be posed upfront, however: Why should there be Community action for cases with such a comparatively narrow

[279] Supra II.3.
[280] See also *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 581) no. 14.
[281] See also DEFRA Consultation Paper (infra 720 ff.) no. 140: "In establishing any redress mech anism the specific economic losses which redress is available need to be clearly identified."
[282] Cf. supra I.3(c).
[283] *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 578) no. 4.
[284] Supra III.2(b).
[285] Supra III.1.

risk scenario and not in other areas which are much more relevant in everyday practice? Liability for traffic accidents, for example, has not yet been harmonized in Europe.[286] The same question has to be answered at Member States' level, of course: Setting up a compensation fund for problems of co-existence may not be an obvious first choice on the agenda of legislators,[287] and the same is true for the ranking of problems that may adversely affect the internal market.[288] On the other hand, no task list will ever be completed if its items are not tackled one by one. As long as the particular item and the way it is being handled fits into a broader regime, there is no reason why it should be left aside just because there are other tasks left to be addressed.

[286] However, motor vehicle liability insurance is significantly regulated, which effectively cush ions the most pressing needs in cases of cross border accidents. Nevertheless, the major reason why Parliament has proposed signficant changes to the Rome II draft (supra II.6(b)(ii)) is exactly the lack of uniform liability (and remedies) rules.

[287] See also supra no. 143 and 152.

[288] Cf. *J. Smits* (fn. 255) 62: "[I]t is quite arbitrary why some topics are part of the acquis and oth ers are not. … If the purpose of the EU is to address issues that may hamper the functioning of the internal market, there is much more to regulate than is currently being done."

Conclusions and Recommendations

Bernhard A. Koch

A survey of all EU Member States shows considerable differences between the various ways that non-GM farmers may be compensated for their economic losses resulting from the admixture of their crops with GMOs stemming from an adjoining field. 1

All foresee at least some sort of minimum protection, if only by offering a general tort law claim under its regular conditions. The latter is currently true for the majority of the Member States, which is not surprising in light of the rather exceptional character of GM farming in most European countries at present. This also seems to be why many have so far not yet seen a need to change existing rules for the risks under survey here, even though other legislation addressing co-existence may have an indirect effect on the application of the respective tort law regime, e.g. by defining the standard of due care. However, existing dissimilarities between the tort laws of the Member States already make for quite substantial variations in the way potential claims would be handled and resolved. 2

This diversity is immediately evident when one considers the kinds of harm the various legal systems recognize as compensable: Purely economic loss is treated separately in some countries (and will therefore only be indemnified subject to additional conditions), whereas it falls under a more general notion of damage in others. Even if a loss is recognized from a tort law perspective, it needs to be linked to a cause within the defendant's sphere. Differences relating to this particular requirement of tortious liability stem not only from substantive, but also from the respective procedural laws of the Member States. Furthermore, there is a wide range of policy reasons for holding a defendant liable, if all other requirements are met, starting (at least historically) from the defendant's subjective fault to strict liability, which does not depend upon a value judgement of the defendant's behaviour. In between are, for example, more objective forms of fault as well as presumptions thereof. 3

All jurisdictions have shaped their tort laws with selections from that range, but that choice was not made uniformly throughout Europe: In an overall as- 4

sessment of the current situation in the Member States, some focus more on the fault side of that range, whereas others have moved towards its no-fault end to a greater or lesser degree. Some jurisdictions have chosen to introduce a special liability regime designed specifically for the risks under survey, or to refer them expressly to some already existing special rules of tort law which address other risks as well. Invariably, claims in those countries will fall under some strict (or at least stricter) liability regime.

5 The Member States have of course all implemented the Product Liability Directive whose regime will most likely not apply to cases of the kind envisaged here, though.

6 Almost all legal systems seem particularly concerned about possible disputes between neighbours, inasmuch as all offer at least some form of special remedy irrespective of fault in cases where some harmful influence originated from adjoining land. The underlying motive is to find a compromise between two conflicting interests which per se are of the same value since both landowners have the identical right to enjoy their property. The solutions found to solve such neighbourhood conflicts therefore seem to be at least one model to consider for developing co-existence rules in the GMO case scenario. However, the ways Member States tackle these issues differ considerably as well. One key aspect common to all jurisdictions in such cases is, however, that they tend not to focus so much on the question whether the behaviour of which the neighbour complains is faulty, but whether it is unusual in the area (even though it may be common in other places), which is a highly objective standard.

7 Fault liability nevertheless remains the default rule in all tort laws. Typically, fault or any other general provisions of tort law are not superseded by strict liability rules altogether, which almost invariably tend to leave certain aspects of the claim to be governed by more general rules. Even if a legal system foresees a strict liability claim in response to a certain loss, this will hardly ever be the exclusive path to compensation for the victim as she may still be able to resort to traditional tort law (i.e. fault liability) alternatively or even cumulatively (though not beyond her actual loss).

8 Depending on the scope of the applicable liability regime, the immediate neighbour who cultivates GM crops is not the only imaginable defendant, but all other farmers in the area, and (apart from cases of established wrongdoing by one of them) it will depend upon the rules of causation to select who will be considered to have set a (possible) cause, and whether and to what extent mere likelihood thereof will suffice to proceed with the case against each of them. The majority of European legal systems, but not all, provide for joint and several liability of all those from whom the admixture may have originated in a way which would trigger liability.

9 Other possible defendants include the seed producers or distributors, those in charge of the farming equipment used (not only) in GM fields, as well as the

authorities whose licenses made the GM cultivation admissible. This does not necessarily mean, however, that all of them will be subject to liability – after all, its requirements need to be fulfilled in order to trigger an award.

10 One fundamental advantage of attributing the losses under survey here via tort law is the fact that it is a risk spreading scheme which is generally accepted in society, not only in light of its strong roots in history, but also since it corresponds to very basic notions of corrective justice, at least in its core. It is essential, however, to keep in mind that its primary function is to compensate losses and not to prevent them. Even though the latter were desirable, other areas of the law offer better tools to achieve that. Liability rules may have a preventive effect, though, even more so if they significantly improve the victim's position: The lower the requirements to hold someone liable for a certain behaviour or activity, the more likely it will be reconsidered by the actor particularly if deciding to go ahead with it is based upon an advance economic assessment of the expected benefits and detriments.

11 Any Community action trying to harmonize tort law as a response to GMO admixture should be based upon careful considerations of the dangers such an interference with existing national laws might bring about. Throughout history, European jurisdictions have each developed an individual claims culture and a distinct compensation culture. Some are more open towards the idea of national solidarity and collective risk-sharing, others still put considerable emphasis on a more individualistic approach. Imposing uniform rules for a comparatively narrow case scenario such as the one envisaged here may lead to a solution which may not be available under all existing tort laws, even though it will necessarily have to build upon at least the more fundamental concepts thereof. Tort law language may alone lead to complications as the technical terms that unavoidably will have to be used are understood by the respective jurisdiction in the way it has evolved there, with all its distinct features and interactions with other aspects that the GMO scheme may not include. Attempting to find a uniform standard for indemnifying losses caused by gene flow may thereby risk an admixture of tort law regimes even within one single Member State. Full harmonization cannot be achieved anyhow unless tort law is harmonized in a more general way which applies beyond singular case settings, and this does not seem to be an option for the time being.

12 It is also important to note in this context that differences in technical or administrative rules on co-existence will most likely have a greater impact on the feasibility of cultivating GM crops and the protection of non-GM farmers from GMO admixture than the existing differences in liability rules: Generally, co-existence approaches are aimed at avoiding damage in the first place. Under normal conditions, and if good farming practice is well designed, damage should be the exception. Consequently, rules intended to avoid harm should have a greater impact than rules applying to cases where segregation measures have failed. Harmonization of liability would therefore only make sense after these ex ante aspects of co-existence are harmonized.

13 A further crucial point is more focused on the definition of the damage which triggers the compensation mechanism. Above all, it is essential to decide whether claimants shall also recover losses caused by admixture even though it remains below the 0.9% threshold. The losses as such may not be rationalized away, but the question is whether the legal system should indemnify them. Such choices need to be made throughout tort law, and they certainly need to be made here. The answer is not predetermined by the fundamentals of tort law – it is the result of balancing the interests involved and, as in any weighing process, the outcome is not entirely predictable. Setting a standard here could resolve some uncertainties which may account at least for some differences between the Member States. This applies correspondingly to seeds, where a clear threshold is currently lacking altogether.

14 Notwithstanding these caveats, tort law may certainly be designed in such a way as to redistribute at least some losses resulting from GMO admixture. However, certain limits will always have to be taken into account which are not inherent in tort law proper, but inseparably connected thereto. Tort claims are traditionally administered by regular courts of law, and the procedure to obtain compensation can be cumbersome, time-consuming and costly. Even if the plaintiffs succeed at the end of this process, they may still not be able to collect damages from the defendants if they do not hold sufficient funds to pay their dues.

15 At least the latter could be avoided if the defendants held liability insurance that covers such losses, though the other (and more fundamental) problems would remain unsolved which concern the tort law claim itself, to which liability insurance is obviously closely connected. If the losses fell under some first-party insurance scheme, however, the victims would not have to resort to tort law in the first place. Probably all farmers already have first-party policies such as farm property insurance, though covering different risks, for example natural disasters such as hail or the like. However, these hazards are typically named in a closed list which typically excludes risks such as GMO admixture at present.

16 Whether third- or first-party insurance, both allow the pooling of risks among a larger group of people exposed thereto and the pool is even bigger if taking out such cover is made mandatory. The insurer can tailor its products according to the various aspects of the risk. At least in theory, for example, those who run a higher risk will typically also pay higher premiums (though not necessarily so, and it is certainly not a linear correlation). The procedure to pay out awards will be less complicated than before a court of law.

17 First-party insurance has the additional advantage for the victim that her peculiar risk is taken care of She should know best what losses she may suffer, and she can therefore (at least in theory) buy cover against such risks tailor-made to her situation. Payments can be even faster than under a liability insurance scheme with direct claims, because the insured risk focuses on the occurrence

of the harm and (at least in general) not its cause, even though certain risks may be excluded. This is not the only reason why this type of insurance may be the most cost-efficient regime. First-party insurance could be of special importance at least in all those cases where there is no other way that leads to compensation, for example due to difficulties of proving causation, or because the applicable national system denies liability for other reasons, in particular if the cultivation of GM crops was carried out in accordance with the applicable farming standards in force at the time.

Further problems with insurance, whether first- or third-party, may arise, however, when insurers assess the risk: They may be lacking crucial information (even with all due efforts), or may not be in a position to duly take account of them when calculating premiums. The policies may include limitations of certain risks or other restrictions. The insured amount may not suffice to cover the full loss owing to manifold reasons, which could have grave consequences. Those at risk may not be aware of it at all or have false assumptions of the extent of the risk: Conventional or organic farmers simply may not know that someone in their vicinity has started to cultivate GM crops. This may seduce them out of buying insurance at all or only subject to unreasonable limitations. Such problems could be remedied by making insurance compulsory, but that may distort the functioning of the market forces. 18

At present, neither liability nor first-party insurance products covering GMO risks seem to be available on the markets under survey. Problems for insurers in this respect can be traced back to the standard criteria which would allow them to consider whether such risks are insurable: estimable frequency and severity, the fortuitous nature of the loss, and the ability to spread it. Arguably, there is currently not enough data available to predict both likelihood and extent of possible losses, particularly in light of the broad range of plant varieties and their peculiar features that have a bearing on these aspects. Unless it is clear for insurers that losses below the legal threshold of admixture need not be covered, the fortuitous aspect of the risk may be lacking entirely, as complete segregation is impossible in a co-existence environment. Arguably the most important obstacle to offering liability insurance cover is a liability regime which allows for compensation of any type of loss irrespective of any wrongdoing by the insured and coupled with a presumption of causation, or – probably even worse – a liability regime which does not allow for predictions of how an admixture case would be solved. 19

Problems relating to the insurability of the risk of admixture could be avoided if a compensation fund were available to absorb it. Some Member States have indeed already decided to establish such a fund or are at least considering doing so in future. 20

Compensation funds are typically tailor-made to a particular risk scenario. The procedure to assess a claim and to make payments is often faster. Since the risk group is identified in advance, the administration of the fund can also be 21

designed according to their specific needs. The range of payors may be broader than under other indemnification regimes – not only those immediately concerned will be involved, but also others with a more general interest, including the State which may otherwise not contribute to indemnifying losses (though participation in an insurance pool may be imaginable). Compensation funds need not necessarily follow the restraints of actuarial mathematics and therefore can be introduced to fill a gap in the insurance market: Even if commercial insurers feel unable to offer cover, compensation funds may nevertheless (or even just for that reason) be installed in order to at least serve as a temporary solution until the market can take over.

22 Compensation funds may operate with less financial means, however, and depending upon the pooling arrangement, the funds may be dried out even before all claims have been settled. Lack of current information is not the only reason why compensation funds may have to struggle with inadequate risk assessment – depending on the political pressure that tends to precede the formation of such a risk pool, its conditions may not even entirely reflect what is already known. Risk differentiation may also be inadequate in comparison to alternative indemnification models. Those who contribute to the fund are not necessarily those who are in control of the risk that should be covered, or at least their contribution may not reflect the actual weight of their influence. Payments out of the fund may not be as predictable as insurance awards, particularly if the means of the fund are limited, or if payments are at least in part only discretionary awards. A much more serious problem arises, however, if the fund is installed ad hoc after the first loss has actually occurred. One major argument against compensation funds is the principle of equality: Why are certain risks (and therefore certain claimants) favoured whereas others are left to the more traditional ways of obtaining compensation? Indeed, one may wonder why a comparatively exotic risk such as the economic losses caused by gene flow should deserve to be addressed by a special fund as long as traffic accidents and other, much more frequent loss scenarios are not equally addressed. This question can of course also be posed with respect to any other special solution, for example in the field of tort law.

23 At first sight, one is inclined to think that the existing diversity of solutions could negatively affect the functioning of the internal market. However, from a legal point of view, there is no obvious reason for grave concerns in this respect for two reasons: First, similar degrees of diversity for compensation mechanisms also apply in other areas, and second, the internal market is more likely to be affected by the diversity in technical co-existence measures. An economic or sociological study may have different findings, though.

24 Any choice to interfere with the present national compensation models in an endeavour to achieve at least some degree of harmonization will necessarily have to be based on a political opinion-forming. The legal perspective itself does not offer sufficient guidance to single out an optimal solution.

25 After all, the tort law and other compensation systems applicable to the cases under survey here only mirror the attitude of the respective jurisdiction towards GM farming, which is primarily marked by other rules such as definitions of good farming practice which come into play ex ante, whereas indemnification by definition is only an ex post matter. Consequently, defining good farming practice is a fundamental task which needs to be fulfilled before any further thought is given to the follow-up issue of how to respond to a situation where someone does not adhere to that standard or causes loss despite full compliance.

26 The various solutions presently offered for losses caused by gene flow are all based upon a weighing of interests, and the choice of tools speaks for itself. Far-reaching tort claims against GM farmers without any effective possibility for them to take out insurance can be contrasted with state-backed compensation funds that are designed to spread these farmers' individual risks evenly. Selecting the one model over the other is a policy choice, and it is not determined by any inherent feature of the respective legal system in general or its tort law in particular.

27 As could be seen above, there are various ways to respond to the risks on which this study is focusing, and so are the possible degrees of harmonizing the current national solutions. All have their peculiar advantages and disadvantages. The choice of either option will necessarily be dominated by the replies to the more fundamental questions of how to promote co-existence, and how far to go in achieving that goal.

28 It is clear that there is no one-stop solution in response to the diversity of the laws of the Member States. Apart from no action at all, the other extreme would be complete harmonization of all aspects of compensating losses arising from the adventitious presence of GMOs in non-GM crops. The latter would require that an exclusive regime will be set up which does not allow any deviations or alternative paths on the side.

29 A lesser degree of harmonization could be achieved by identifying a compensation model for all Member States which leaves certain aspects open for them to regulate individually. As a rule of thumb, however, the more that is left to individual solutions, the less desirable such a model seems to be from an EU perspective. It will inevitably lead to different treatments of similar cases in the Member States, but this is not necessarily in conflict with the intention to proceed with harmonization in the first place. After all, some aspects of the claims will be handled in a uniform way, and a political assessment of the problem may lead to the conclusion that only those aspects are deemed crucial and worthy of harmonization. Identifying these elements will be critical, however. One (but certainly not the only) key aspect will be how to deal with the requirement of causation, for example, which is an essential component of any imaginable compensation scheme.

30 A very mild form of harmonization (if at all) would be to offer a merely optional model for the Member States to consider without any need for them to implement it. This will most likely not abolish the differences between the various regimes existing altogether, however, even though some Member States may indeed adjust their systems accordingly. From a cost-benefit-analysis perspective, one may wonder whether establishing such a regime is really needed in light of the fact that the various options currently chosen by the Member States already constitute a full catalogue of possible schemes, and the pros and cons of each of them are clearly visible for those jurisdictions which are considering a re-evaluation of their own system.

31 This has to be differentiated from setting a minimum standard that shall apply throughout Europe. The policy choice could be, for example, that non-GM farmers deserve compensation for at least the immediate harmful effects of contamination, and that it should be more or less readily available to them. Further conditions or aspects could be included in defining that minimum standard. An alternative target that could be set would be to require Member States to achieve insurability of such risks, but leave the tools to reach that goal up to them to choose.

32 Another option could be to conceive a system which only deals with cross-border contamination. This would lead to inequalities, however, since victims of a transboundary incident would be treated differently from purely national cases.

33 Defining cross-border matters on a purely technical level does not seem to be necessary: Questions of jurisdiction are already determined by European law, allowing a tort law claimant to sue not only in the country where the loss occurred, but also where the harmful cause was set. Conflicts of tort laws is already covered by European legislation that will soon become effective. From then on, in all countries where it will apply, the law of the jurisdiction in which the damage occurs shall govern, irrespective of the place where the event giving rise to the damage occurred, so that the law of the non-GM farmer would apply to tort claims. The only potential gap could concern the question whether national compensation funds allow foreign victims to file transboundary claims, but such gaps may be filled by bilateral arrangements, for example.

34 The key concern of any steps taken towards harmonization – if that should be the political preference – must be the interaction of any uniform guidelines or rules with the existing legal systems in general and the tort law regimes in particular.

35 This makes it hard to imagine how a uniform liability regime as such could be introduced without more far-reaching efforts to link it to some common basis of European tort law in general which has yet to be defined. As long as insurers do not offer adequate products on the market covering first-party or third-party risks of the kind under survey here, considerations to leave the matter to the

insurance market forces are rather academic: The reasons brought forward by insurers as obstacles to covering such risks therefore have to be addressed first. Compensation funds as a temporary solution filling these gaps in the insurance market seem to be a workable solutions in some Member States, but whether it is desirable and feasible to establish such a regime for the others, either at national or at European level, depends upon economic and political factors beyond the scope of this study.

Annex

BELGIUM

Flemish Region: **Preliminary draft Decree on the organisation of the coexistence of genetically modified crops with conventional and organic crops** (excerpts)[*]

Chapter I. General provisions

Article 1. This Decree regulates a region.

Article 2. For the application of this Decree and its implementing Decrees, the follow ing definitions shall apply:

1. genetically modified crop: a crop, consisting of plants or reproductive parts of plants where the genetic material has been altered in a way which is not possible in nature through reproduction and/or natural recombination. According to this definition: genetic modification takes place if one of the techniques referred to in Annex I A, part 1 of Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EC is applied;
   the techniques referred to in Annex I A, part 2 of Directive 2001/18/EC of the Euro pean Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EC are not considered to be techniques that result in genetic modification;
2. organic crop: crop, the produce of which is intended to carry an indication that refers to the organic production method, in accordance with Council Regulation (EEC) No 2092/91 of 24 June 1991 on the organic production of agricultural prod ucts and indications referring thereto on agricultural products and foodstuffs;
3. conventional crop: crop that does not fall under organic cultivation and that is cul tivated from material which does not have a label stating that it is a genetically modified organism or that it contains a genetically modified organism;
4. farmer: a farmer, as referred to in Article 2(7) of the Decree of 22 December 2006 establishing a common identification of farmers, farms and farmland within the framework of the fertilising policy and the farming policy;
5. operator: an operator, as referred to in Article 2(8) of the Decree of 22 December 2006 establishing a common identification of farmers, farms and farmland within the framework of the fertilising policy and the farming policy;
6. development: a development, as referred to in Article 2(9) of the Decree of 22 De cember 2006 establishing a common identification of farmers, farms and farmland within the framework of the fertilising policy and the farming policy;

[*] Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1385489.

7. activities: activities, as referred to in Article 2(10) of the Decree of 22 December 2006 establishing a common identification of farmers, farms and farmland within the framework of the fertilising policy and the farming policy;
8. contractor: company or operator that works in agriculture and that carries out farm ing activities for a salary, such as soil cultivation, sowing, harvesting;
9. isolation distance: distance between the boundary of a genetically modified crop and the closest lying boundary of a conventional or organic crop of the same crop where the cultivation conditions must be followed, which are laid down by the Flemish Government for each type of modified crop;
10. notification distance: distance measured between the boundary of a plot of a geneti cally modified crop where the mandatory statement of intention must be followed, which is laid down by the Flemish Government for each type of modified crop;
11. Fund: the Agriculture and Fisheries Fund established by means of the Decree of 19 May 2006 regarding the setting up and operation of the Agriculture and Fisheries Fund;
12. competent authority: the policy area designated by the Flemish Government which is authorised to carry out the current Decree and monitor its implementation;
13. plot: a plot of agricultural land as defined in Article 2(1a) of Regulation (EC) No. 796/2004;
14. statement of intention: a declaration stating the intention of the cultivation of a genetically modified crop;
15. cultivation contract: an agreement whereby a plot is put into use for a period of less than a year and whereby the operator, after carrying out the preparation and fertilising activities, hands over the produce of a certain cultivation to a third party against payment;
16. committee: a balanced body with sufficient basic scientific knowledge regarding coexistence measures that is used, among other things, to assess appeals by farmers and applications for compensation.

Article 3. This Decree applies to every farmer and every mediating company or per son in the cultivation and harvesting of conventional, organic and genetically modified crops where the cultivation is permitted in accordance with Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Direc tive 90/220/EC and in accordance with Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed. Every crop is covered by the scope of this Decree up to the first storage of the crop.

Chapter II. Conditions for the cultivation of genetically modified crops

…

Article 7. 1. In the event that no objections are raised or that the objections are not considered admissible or valid by the committee, the farmer intending to cultivate a genetically modified crop shall pay a contribution to the Fund within fifteen days of receiving the notification of this decision. Within fifteen days following the registration of the payment the crop shall be registered by the competent authority in the register as referred to in Article 8. The registration in the register allows the farmer intending to cultivate a genetically modified crop to sow or plant the crop.

Contributions must be paid per crop every year. For crops that are repeated within the same year, a statement of intention must be made for every vegetation period as referred to in Article 4(2) and a contribution must be paid. These contributions are only used to wholly or partially compensate economic damage as referred to in Article 11 and the direct and indirect costs relating thereto. The Flemish Government shall specify the amount, the method of payment to the Fund and the other measures for using the col lected sums and the administrative fines as referred to in Article 14.

The contributions are revised annually.

2. Notwithstanding the provisions in paragraph 1, the contribution to the Fund is not payable if the statement of intention contains an obligation as defined in Article 4(5).

Within fifteen days following the registration of this statement of intention the crop shall be registered by the competent authority in the register as referred to in Article 8. The registration in the register allows the farmer intending to cultivate a genetically modified crop to sow or plant the crop.

Chapter IV. Economic damage and liability

Article 11. 1. Economic damage comprises the cost of the harvest resulting from con tamination that is observed as a result of the cultivation of a genetically modified crop within the notification distance and which is unexpected and can not be technically prevented.

The Flemish Government shall lay down detailed provisions for this.

The cost is the difference between the market price of the harvest which has a label stating that the harvest contains genetically modified organisms in accordance with the European legislation in force on labelling and the market price of a similar harvest or the agreed contract price for the crop. The market price of a similar harvest is in the case of conventional crops the price obtained when there is no label stating that the har vest contains genetically modified organisms in accordance with the European legislation in force. The market price of a similar harvest is in the case of organic crops the price obtained when these products are placed on the market as products that comply with the provisions for products that are guaranteed as being produced through organic farming.

If the produce can not be placed on the market due to contamination with genetically modified plants, the economic damage is defined as follows. The economic damage equals the difference between the market price of a similar harvest, as defined above, and the residual value. The residual value in this case is the value of the harvest for internal use in the farmer's company or the value of every other revaluation of that harvest.

2. The economic damage in this case is increased by the extra loss caused by every de classification or suspension of a plot or product, of a part or the entirety of the farm.

3. In this case, the economic damage as defined in paragraph 1 for all production types is increased by the costs linked to the destruction of the harvest. The Flemish Govern ment lays down the conditions under which the harvest must be destroyed and deter mines the methods under which this should occur.

Article 12. 1. A farmer who has suffered economic damage, as defined in Article 11 may submit an application for compensation to the committee. Without taking away from the story of the parties concerned to the civil court and following the decision by the committee, the economic damage may be wholly or partially compensated by the Fund, provided:

1. the disadvantaged farmer does not cultivate the same genetically modified crop;
2. the disadvantaged farmer does not cultivate the same non genetically modified va riety.

If the farmer cultivating a genetically modified crop or the person referred to in Article 6(2) who has worked on a plot with genetically modified crops within the notification distance, does not comply with the cultivation conditions laid down, he will be liable for paying the compensation for the economic damage.

The Flemish Government shall lay down the methods which must be complied with in order to submit a claim for compensation to the committee. The Flemish Government shall lay down the conditions under which and the period within which compensation can be obtained.

2. Farmers who as a result of submitting the statement of intention submit an objec tion in which the intention to cultivate the same crop as the genetically modified crop concerned was cited as being for own economic interest and where the objection was considered inadmissible by the committee, may request compensation, payable by the Fund, should damage occur as defined in Article 11 to the same type of plant on a plot that lies wholly or partially within the isolation distance.

3. Notwithstanding the provisions in paragraph 1, compensation may not be requested from the committee if the statement of intention contains an obligation as defined in Article 4(5).

4. The compensation as referred to in paragraph 1 may be turned down if it is thought that the farmer who suffered economic damage may have contributed through his be haviour or processes to the contamination of a genetically modified crop with a con ventional or organic crop.

Walloon Region: **Preliminary draft decree on the coexistence of genetically modified crops, conventional crops and organic crops** (excerpts)[*]

Chapter I Definitions

Article 1. For the purposes of this Decree and its implementing orders, the following definitions shall apply:

1. Genetically modified plant (GMP): plant or part of plant, capable of reproducing or transferring genetic material, in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination, in accor dance with the definition of genetically modified organism (GMO) in Article 2(2) of Directive 2001/18 of the European Parliament and of the Council of 12 March

[*] Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1291307.

2001 on the deliberate release into the environment of genetically modified organ isms and repealing Council Directive 90/220/EEC;
2. genetically modified crop: crop of genetically modified plants grown from planters la belled GMO or labelled as containing GMOs, in accordance with current legislation;
3. organic crop: crop yielding produce that is intended to carry indications referring to organic production, in accordance with Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications refer ring thereto on agricultural products and foodstuffs;
4. genetically compatible plant: a plant is said to be genetically compatible with a ge netically modified plant where it can integrate genetic material from the genetically modified plant into its genome by sexual reproduction;
5. genetic event: the combination of genes characterising the genetic modification of a genetically modified plant;
6. conventional crop: crop which does not come under the definition of an organic crop, or the definition of a genetically modified crop;
7. producer: any natural or legal person growing a crop for their own profit, whether or not they themselves carry out the agricultural work, transportation and storage operations relating to it;
8. unique identifier: identifier assigned to genetically modified organisms in accor dance with Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labelling of geneti cally modified organisms and the traceability of food and feed products produced from genetically modified organisms and Regulation (EC) No 65/2001 [sic] of 14 January 2004 establishing a system for the development and assignment of unique identifiers for genetically modified organisms;
9. isolation distance: minimum distance to be kept between the edge of a crop of ge netically modified plants and the nearest edge of a conventional or organic crop of plants which are genetically compatible with the genetically modified plants;
10. Fund: the "Budgetary Fund for the quality of animal and vegetable products" established by the Programme Decree of 18 December 2003 applying various measures in the areas of regional taxation, liability and debt, organisation of energy markets, environment, agriculture, local and delegated powers, heritage and housing and the civil service;
11. supervisory authority: the body appointed by the Government to supervise the im plementation of this Decree.

Chapter II Aims and scope

…

Article 3. This Decree applies to all producers of genetically modified crops grown from varieties whose placing on the market has been authorised in accordance with Council Directive 90/220/EEC of 23 April 1990 on the deliberate release into the envi ronment of genetically modified organisms, or Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 and the laws transposing these in the various Member States of the European Union, or Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003, and to enterprises and persons undertaking any cultivation work with these crops.

This Decree shall apply to persons and enterprises ensuring the transportation, storage or processing of GMPs where these plants may be a source of adventitious presence of GMPs in a conventional crop or organic crop.

This Decree shall apply to owners of land on which a crop of GMPs has been grown, and owners of land located within the isolation distance.

This Decree shall apply to producers of organic or conventional crops farming plots of land located within the isolation distance of a crop of genetically modified plants, and any producer wishing to assert their right to compensation from the Fund for financial losses suffered due to the adventitious presence of genetically modified plants in a conventional crop or organic crop.

Article 4. This Decree's main objective is to keep the involuntary release of geneti cally modified plants under control in order to preserve producers' freedom of choice between genetically modified crops, conventional crops and organic crops, and con sumers' freedom of choice between the products of these different crops. A second objective is to prevent and, where applicable, to compensate financial losses which may be suffered as a result of adventitious presence of genetically modified plants in a conventional crop or organic crop.

Chapter III Determination of financial losses

Article 5. *Section 1.* For conventional crops, financial losses shall mean the negative difference between the market value of a harvest that must be labelled as containing GMOs in accordance with European legislation in force and the market value of a simi lar harvest that does not require labelling as containing GMOs.

If the harvest cannot be placed on the market because of admixture with genetically modified plants, the financial losses shall be taken as the market value of a similar har vest not labelled as containing GMOs, from which shall be deducted, where applicable, any type of benefit gained from this harvest, including use within the farm.

Section 2. If the producer is committed to a contract imposing a GMO content below the legal labelling threshold, the financial losses shall be defined as the negative difference between the market value of a harvest containing genetically modified plants and the value of a similar harvest placed on the market as a product conforming to the contract terms, provided that all other contract requirements have been met and that the contract is based on a specification sheet officially recognised within the context of this Decree.

If the produce cannot be placed on the market because of admixture with genetically modified plants, the financial losses shall be taken as the market value of a similar har vest conforming to the contract terms, from which shall be deducted, where applicable, any kind of benefit gained from this harvest, including use within the farm.

Section 3. For organic crops, financial losses shall mean the negative difference be tween the market value of a harvest containing genetically modified plants and the mar ket value of a similar harvest placed on the market as a product meeting the standards laid down for products of organic agriculture.

If the harvest cannot be placed on the market as a certified product of organic agricul ture because of admixture with genetically modified plants, the financial losses shall be taken as the market value of a similar harvest conforming to the standards laid down for products of organic agriculture, from which shall be deducted, where applicable, any kind of benefit gained from this harvest, including use within the farm.

Further losses occurring due to any decommissioning or suspension of plots of land or products, or part or all of a farm, shall be added, where applicable, to the financial losses incurred.

Section 4. Whatever the kind of crop, the financial losses shall also include the costs associated, where applicable, with destroying harvests, and any other losses or costs directly linked to adventitious presence of GMPs in the crop.

Section 5. Contaminated organic or conventional crops shall be marketed, at the choice of the producers of these crops, either by themselves or by an operator appointed by the supervisory authority.

Section 6. The Government shall lay down the methods of implementation of Sections 1 to 5, including in particular the methods of assessment of financial losses and methods of recognition of specification sheets referred to in Section 2.

Article 8. *Section 1.* Producers intending to grow a genetically modified crop shall submit a request for authorisation to the supervisory authority and inform them of, at least:

1. their producer number issued in the context of the Directorate General of Agricul ture's "Integrated Management and Control System (IMCS)";
2. the precise position and surface area of the plot of land on which they intend to grow the crop in question;
3. the name of the species that will be sown or planted;
4. the unique identifier of the genetically modified plant and the name of the variety that will be grown;
5. the cultivation period;
6. the written commitment of producers farming land within the isolation distance not to grow a conventional or organic crop of a plant species genetically compatible with the planned genetically modified crop on this land in the same crop year. In the absence of this written commitment, evidence of notification of intent of cultivation in accordance with Article 7(1)(3°);
7. where applicable, evidence of notification of intent of cultivation to producers with whom they regularly share agricultural machinery, in accordance with Article 7(1) (2°);
8. evidence of notification to the owner of the land in accordance with Article 7(1) (3°);
9. a commitment to meet the operating conditions defined in accordance with Ar ticle 10.

Section 2. The Government shall lay down the methods of requesting authorisation from the supervisory authority. The supervisory authority shall grant authorisation for cultivation. This authorisation shall be subject to payment of a subscription to the Fund. This subscription, the sum and payment methods of which shall be set by the Govern ment, shall be established for all producers and other participants in the agricultural sector. The subscription may be modulated according to risk factors of release of the ge netically modified crop such as, in particular: whether or not GMPs are grown, whether or not work is carried out requiring contact with GMPs, the species grown, the surface area to be cultivated, the distance separating the genetically modified crop from land farmed by the nearest neighbouring producers, the coexistence on a farm of a GMP crop and non genetically modified crops such as those referred to in Article 15(1), and taking

account of cultivation agreements which may have been concluded between neighbour ing producers. Where a producer or operator poses no risk, the subscription shall be set at zero. Subscriptions shall be set taking account, where applicable, of subscriptions to insurance by GMP producers or operators carrying out work relating to GMPs. …

Article 11. All agricultural enterprises other than the producer planning to work with a genetically modified crop, whatever the cultivation work planned, must be approved by the supervisory authority. All agricultural enterprises other than the producer carry ing out transportation or storage of genetically modified plants in the territory of the Walloon Region must be approved by the supervisory authority. The Government shall determine the methods and conditions of these approvals, which must be subject to payment of an annual subscription to the Fund, and the requirements that must be met by these enterprises. …

Chapter V Compensation

Article 15. *Section 1.* Without prejudice to recourse to civil law by the parties con cerned, financial losses as defined in Article 5 shall be compensated by the Fund, pro vided that the claimant producer does not grow genetically modified crops character ised by the same genetic event as that which caused the financial losses, and has not done so for a number of years set by the Government for each species concerned. If the producer grows or has grown a genetically modified species characterised by the same genetic event as that which caused the financial losses, the losses may nonetheless be compensated by the Funds provided that the producer of the genetically modified crop can prove to the supervisory authority that they have followed all the legal requirements relating to the cultivation concerned.

The Government shall set the methods by which claims for compensation must be sub mitted by producers and the methods of payment of the compensation to the producers concerned. The Government may set a threshold below which compensation shall not be due, and a deadline after which compensation can no longer be claimed.

Section 2. Without prejudice to other penalties, the compensation provided for by Sec tion 1 may be wholly or partially incumbent on producers which have grown geneti cally modified crops within the isolation distance either without notifying neighbouring producers or without taking account of their planned cultivations. This compensation shall concern plots of conventional or organic crops of which a part of the surface area is located in the isolation zone and which suffer financial losses as a result of admixture with a genetically modified plant identical to that grown by the producer of the geneti cally modified crop.

Section 3. The compensation provided for by Section 1 may be reduced or cancelled if the producer that suffered the financial losses may have contributed to the presence of genetically modified plants in their conventional or organic crop due to behaviour or practices increasing the risk of adventitious admixture. The Government shall deter mine the particular circumstances which shall lead to a reduction of compensation and the sum of this reduction.

Section 4. The Government shall set the subscriptions to the Fund referred to in Article 8(2) and Article 11 to ensure that the sums received cover the sums paid in compensa tion for the financial losses defined in Article 5 and, at least in part, the costs of record

ing, monitoring and administrative management linked to the implementation of this Decree.

The Government may decide in implementing this Decree that economic operators other than producers growing genetically modified crops or the operators cited in Ar ticle 11 shall subscribe to the Fund. The Government shall set the sums due, and shall determine the methods of payment for these subscriptions, and the activities which may be financed by the Fund in the context of GMO management.

DENMARK

Act on the Growing etc. of Genetically Modified Crops (excerpts)*

Compensation Scheme and Obligation to Contribute

9. (1) Within a framework provided for in the Budget the Minister for Food, Agriculture and Fisheries shall pay compensation to any farmer who suffers a loss due to the occur rence of genetically modified material in his crops if:

- in the same growing season within a specified area, a genetically modified crop of the same or a related variety has been grown which may be crossbred into the crop of the farmer suffering the loss and
- the genetically modified crop can be identified in the crop of the farmer suffering the loss.

(2) The Minister shall lay down rules on the delimitation of the area mentioned in (1) (i) above.

(3) The amount entitling a farmer to compensation cf. (1) above shall not exceed:

- the reduction in the sales price of the crop caused by the occurrence of genetically modified material,
- the costs for sampling and analysis and
- any losses as a consequence of requirements for conversion of organic areas or animals due to the occurrence of genetically modified material.

(4) Irrespective of the provisions of (1)(i) and (ii) above, the Minister will pay compen sation if an authorised organic farmer suffers a loss due to the occurrence of genetically modified seed in his seed for sowing. The loss entitling such farmer to compensation shall be calculated in accordance with the provisions of (3) above.

(5) The compensation may be reduced or, depending on the circumstances, be forfeited altogether if the farmer suffering the loss has deliberately or inadvertently contributed to the occurrence of the loss or due to his behaviour has reduced his opportunities of making a recourse claim, cf. section 11.

(6) Compensation cannot be paid for any loss suffered by such farmer as a consequence of the occurrence of genetically modified material in the crops of the farmer suffering

* Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1163900.

the loss if the occurrence of genetically modified material does not exceed a specific threshold value fixed by the Minister.

10. (1) Compensation claims shall be filed without undue delay after it has come or should have come to the knowledge of the person suffering the loss that genetically modified material has been mixed in with his crop. If a claim is not filed without undue delay, the right to compensation shall be forfeited. The Minister for Food, Agriculture and Fisheries shall lay down specific rules governing the requirements for filing such claims and the information which the farmer is subsequently required to provide in order to obtain compensation.

(2) The right to receive compensation shall be forfeited if the claim has not been filed by 1 August in the first calendar year after harvesting the crop.

11. To the extent compensation is paid under the rules of this Act, the Minister for Food, Agriculture and Fisheries shall be subrogated to any claims for damages the farmer suf fering the loss may have as against the person responsible for the loss, always provided that the farmer suffering the loss shall retain his right to put forth claims against the per son responsible for the loss with regard to losses in excess of the compensation paid.

12. (1) In whole or partial cover of the costs associated with the compensation scheme DKK 100 shall be payable per year per hectare on which genetically modified crops are grown.

(2) The Minister for Food, Agriculture and Fisheries shall lay down provisions govern ing the collection and payment of the amount mentioned in (1) above.

Executive Order on Compensation for Losses due to Certain Occurrences of Genetically Modified Material

In pursuance of section 9(2), section 10(1) and section 15(2) of the Danish Act No. 436 of 9 June 2004 on the Growing etc. of Genetically Modified Crops and by authorisation, the following is laid down:

1. (1) In pursuance of section 9(1) of the Act on the Growing etc. of Genetically Modi fied Crops, the Danish Plant Directorate shall pay compensation to any farmer who suffers a loss due to the occurrence of genetically modified material in his crops within a framework established in the Budget, but see section 2 below, if

i) in the same growing season within the distance stipulated in Annex 1, a genetically modified crop of the same or a related kind has been grown which may be crossbred into the crop of the farmer suffering the loss and
ii) the genetically modified crop can be identified in the crop of the farmer suffering the loss.

(2) Irrespective of the provisions of (1) above, the Danish Plant Directorate may pay compensation to an authorised organic farmer who suffers a loss due to the occurrence of genetically modified seed in his seed for sowing.

2. (1) Compensation can only be paid for the loss suffered by the farmer if the occur rence of genetically modified material in his crop exceeds a threshold value of 0.9 per cent. For growers of seed for sowing the labelling threshold for adventitious presence of

genetically modified material in seed, in force at any time pursuant to the Community legislation, shall apply.

(2) Based on the result of the analyses described in section 8 below, the Danish Plant Directorate decides whether the condition stipulated in (1) above has been fulfilled.

3. Compensation for the occurrence of genetically modified material in a crop cannot be paid to farmers who have signed an agreement with reference to section 10 of the Executive Order on the Growing etc. of Genetically Modified Crops in so far as the crop in question is concerned.

Filing of Claims

4. (1) Compensation claims shall be filed with the Danish Plant Directorate at Skov brynet 20, DK 2800 Kgs. Lyngby. The claim filed shall include information about the name and address of the farmer suffering the loss, information about the kind and va riety of the lot in which genetically modified material occurs as well as information about the size and location of such lot. Furthermore, the claim filed shall include an explanation of how the occurrence was found.

(2) Claims received later than 14 days after the time at which the mixing in with geneti cally modified material came or should have come to the knowledge of the person filing the claim will generally not be satisfied.

(3) The right to compensation shall be forfeited if the claim has not been received by 1 August in the year following the harvest year.

5. (1) Not later than four weeks after the filing of a claim, the following shall be for warded to the Danish Plant Directorate:

i) Information about the origin of the sowing material.
ii) Information about the times of sowing and harvesting.
iii) Sketch of the location of the field on which the crop in question was grown and information about the field block number.
iv) Information about whether a machine pool, shared machines or the like was used and if so the name and address of such.
v) A description of the circumstances regarding the present and previous, if any, stor ing of the harvested crop.

(2) The information shall be submitted by means of a form which may be obtained from the Danish Plant Directorate or at www.pdir.dk.

6. The Danish Plant Directorate may request further information or documentation for use in its consideration of the compensation claim.

Sampling and Analysis

7. (1) With a view to identifying and quantifying the occurrence of genetically modi fied material, a sample is taken and analysed from the field of the person filing the claim. The sampling may be performed by the Danish Plant Directorate or by a sampler authorised in pursuance of the provisions of the Executive Order on Field Seeds or the Executive Order on Seed Corn. The sampling shall be performed in pursuance of the

Danish Plant Directorate's »Instructions for sampling of seed« (»Instruks i prøvetag ning af frø«).

(2) The sampling shall be requested concurrently with the forwarding of the informa tion mentioned in section 4(1) above.

8. For use in the assessment of the type and nature of the occurrence of genetically modified material, the Danish Plant Directorate will decide what analyses to perform and what methods of analysis to use based on the information submitted.

9. The costs for sampling and analysis shall be paid by the person filing the claim but will be reimbursed if the Danish Plant Directorate pays compensation. Information about the costs in connection with the analysis shall be given to the person filing the claim prior to commencement of the analysis.

Calculation of Compensation

10. (1) In pursuance of section 9(3) of the Act on the Growing etc. of Genetically Modi fied Crops the loss eligible for compensation cannot exceed:

i) the reduction in the price of the crop caused by the occurrence of genetically modi fied material and
ii) any losses as a consequence of requirements for conversion of an organic area or animals due to the occurrence of genetically modified material.

(2) The person suffering the loss shall forward documentation for the loss mentioned in (1) above.

11. (1) In pursuance of section 9(5) of the Act on the Growing etc. of Genetically Modi fied Crops the compensation may be reduced or, depending on the circumstances, be forfeited altogether if the farmer suffering the loss has deliberately or inadvertently contributed to the occurrence of the loss or due to his behaviour has reduced the Danish Plant Directorate's opportunities of making a recourse claim, cf. section 12 below.

(2) The Danish Plant Directorate may entirely or partially refuse to pay compensation and require that compensation paid be repaid if the farmer suffering the loss receives compensation for such loss from the person responsible for the loss, or if the loss is covered by an insurance benefit or by other benefits in the nature of compensation for damages.

12. To the extent compensation is paid under this Executive Order, the Danish Plant Directorate shall, cf. section 11 of the Act on the Growing etc. of Genetically Modified Crops, be subrogated to any claims for damages the farmer suffering the loss may have as against the person responsible for the loss.

Appeals

13. (1) The decisions regarding compensation made by the Danish Plant Directorate cannot be appealed to another administrative authority.

(2) In pursuance of section 16(2) of the Act on the Growing etc. of Genetically Modi fied Crops, any person whom the decision regarding compensation concerns may re

quest that the decision be brought before the courts of law. Such request shall be made to the Danish Plant Directorate within four weeks after the date of receipt of the deci sion. Subsequently, the Danish Plant Directorate will institute legal proceedings under the rules of civil procedure.

Coming into Force

14. This Executive Order shall come into force on 17 December 2005.

Annex: Distances in relation to compensation

The distances within which farmers may claim compensation for losses due to the oc currence of genetically modified material.

The distance between fields is measured from field edge to field edge.

Crop	*Seed growing*	*Production*
Maize		300m
Beet	3,000m[1]	75m
Potato	30m	30m

[1] In case of growing of seed for sowing on a field with genetically modified beet.

FINLAND

Gene Technology Act (excerpts)*

Sec. 2 [Scope of application of the Act]. (1) This Act shall apply to the contained use and deliberate release into the environment of genetically modified organisms. The Act shall also apply to the launch and operation of installations and premises intended for the handling of genetically modified organisms. …

Sec. 36 [Compensation for loss]. (1) Compensation for damage to the environment arising as a consequence of activities referred to in this Act is subject to the provisions of the Act on Compensation for Environmental Damage (737/1994).

(2) Compensation for loss caused by a product containing genetically modified organ isms to a person or to property intended for private use or consumption and used by the injured party mainly for such purpose is subject to the provisions of the Product Liability Act (694/1990).

(3) Compensation for other loss caused by activities referred to in this Act is subject to the provisions of the Tort Liability Act (412/1974). The operator is liable to compensate for such loss, even if it was not caused wilfully or through carelessness.

(4) The provisions of paragraphs 1 to 3 shall not restrict the right of the injured party to compensation on the basis of an agreement or by virtue of other acts than those referred to in paragraphs 1 to 3.

Environmental Damage Compensation Act (excerpts)**

Section 1 [Scope of application]. (1) Compensation shall be paid for a loss defined in this Act as environmental damage, caused by activities carried out in a certain area and resulting from:

1. pollution of the water, air or soil;
2. noise, vibration, radiation, light, heat or smell; or
3. other similar nuisance.

(2) The keeper of a road, railway, port, airport or other comparable traffic area shall also be considered to be carrying out activities referred to above in paragraph 1.

* Law No. 377/1995 as amended (unofficial translation by the Finnish Ministry of Social Affairs and Health, http://www.finlex.fi/fi/laki/kaannokset/1995/en19950377.pdf).

** Law No. 737/1994 (unofficial translation by the Finnish Ministry of Social Affairs and Health, http://www.finlex.fi/fi/laki/kaannokset/1994/en19940737.pdf).

(3) This Act does not apply to contractual liability for compensation.

Section 2 [Relationship to other legislation]. (1) This Act does not apply to losses, compensation for which is provided for in another Act.

(2) This Act, however, also applies to environmental damage where compensation is due by virtue of the Product Liability Act (694/90).

(3) The Adjoining Properties Act (26/20) and the Water Act (264/61) contain separate provisions on losses to be compensated under this Act.

(4) The application of the provisions of this Act in procedures under certain other Acts is laid down in section 12.

(5) Unless otherwise provided for in this Act, the Damages Act (412/74) applies to compensation for environmental damage.

Section 3 [Causality]. Compensation shall be paid for environmental damage in ac cordance with this Act if it is shown that there is a probable causal link between the activities and the loss referred to in section 1, paragraph 1. In assessing the probability of causality, consideration shall be given, among other things, to the type of activity and loss and to the other possible causes of the loss.

Section 4 [Obligation to tolerate the nuisance]. (1) Compensation shall be paid for environmental damage by virtue of this Act only if toleration of the nuisance is deemed unreasonable, consideration being given, among other things, to local circumstances, the situation resulting in the occurrence of the nuisance, and the regularity of the nuisance elsewhere in similar circumstances.

(2) The obligation to tolerate the nuisance prescribed in paragraph 1 above shall not, however, apply to loss inflicted deliberately or criminally, nor to bodily injury, nor to material loss of greater than minor significance.

Section 5 [Damage for which compensation is due]. (1) Compensation shall be set for bodily injury and material loss in accordance with the provisions of chapter 5 of the Damages Act. Compensation shall be paid for financial loss not connected with bodily injury or material loss if the loss is not minor. Compensation shall, however, always be paid for loss inflicted criminally.

(2) Reasonable compensation shall be paid for environmental damage other than that specified in paragraph 1; in the determination of this compensation, due consideration shall be given to the duration of the nuisance and the loss, and to the chances of the per son suffering the loss avoiding or preventing this loss.

Section 6 [Costs of prevention and reinstatement]. (1) Compensation shall also be paid by virtue of this Act for:

1. the costs of the measures needed to prevent environmental damage, as referred to in section 1, threatening the person undertaking the measures, or to reinstate a dam aged environment;
2. the costs, incurred by authorities, of measures to prevent the threat or the effects of a nuisance referred to in section 1, or to reinstate a polluted environment to its original

state, if the costs are reasonable relative to the nuisance or the threat thereof, and to the benefit gained by the measures; and
3. the costs of investigations that proved unavoidable in carrying out the preventive measures or reinstatement referred to above in subparagraphs 1 and 2.

(2) This section does not apply to costs provided for in section 17 of the Act on the Im posed Threat of a Fine (1113/90).

Section 7 [Persons liable for compensation]. (1) Even when the loss has not been caused deliberately or negligently, liability for compensation shall lie with a person

1. whose activity has caused the environmental damage;
2. who is comparable to the person carrying out the activity, as referred to in subpara graph 1; and
3. to whom the activity which caused the environmental damage has been assigned, if the assignee knew or should have known, at the time of the assignment, about the loss or the nuisance referred to in section 1 or the threat of the same.

(2) In the assessment of the comparability referred to in paragraph 1, subparagraph 2, due consideration shall be given to the competence of the person concerned, his finan cial relationship with the person carrying out the activity and the profit he seeks from the activity.

Section 8 [Joint and several liability]. (1) Persons liable for compensation shall be jointly and severally liable for environmental damage probably caused by the relevant activities as a whole.

(2) Unless otherwise agreed, the joint and several liability for compensation shall be divided equitably, giving due consideration to the grounds for the liability, the chances of preventing the damage and the other prevailing circumstances.

(3) However, liability for compensation shall not be imposed by judgment, in a degree exceeding the appropriate share, on a person whose share in inflicting the loss is mani festly minor.

Section 9 [Advance compensation]. (1) If the future environmental damage resulting from a nuisance can be assessed in advance, compensation for it shall on demand be pre set either as a lump sum or as an annual payment. If there is later an essential change in circumstances, or the assessed loss is otherwise essentially different from that actually resulting from the nuisance, the compensation set in this manner may be adjusted to a reasonable extent considering the circumstances.

(2) An advance lump sum compensation to be paid for damage caused to real estate shall be ordered to be deposited if the real estate, due to a mortgage or according to the provisions on the lien for an outstanding purchase price, stands as security for a claim or the right to collect a specific revenue in money or goods, and the owner does not show that the rights holders have consented to the payment of the compensation to him, or a court of law considers that the property can, despite the environmental damage, clearly bear the encumbrances attached to it. The provisions of section 7 of the Act on the Re demption (Expropriation) of Immoveable Property and Special Rights (603/77) apply, where appropriate, to the deposit and withdrawal of the compensation.

Section 10 [Duty of redemption]. (1) If, owing to environmental damage, the real estate is rendered entirely or partially useless to the owner, or its use for its intended pur pose is essentially hampered, the party liable for compensation shall redeem the entire real estate or part thereof on the demand of the owner.

(2) If a court of law rules that the real estate or part thereof shall be redeemed, the provi sions of the Act on the Redemption (Expropriation) of Immoveable Property and Special Rights apply to the redemption.

(3) If the damage has been caused jointly by several persons, the provisions of paragraph 1 only apply to the persons whose shares in causing the entire damage are substantial. The provisions currently in force on compensation paid under section 8 shall apply to the redemption compensation paid.

Section 11 [Compensation procedure]. An action referred to in this Act shall be brought before the court of law competent to hear a case concerning compensation by virtue of chapter 10 of the Code of Judicial Procedure. …

FRANCE

Projet de loi adopté par le Sénat après déclaration d'urgence relatif aux organismes génétiquement modifiés (excerpts)[*]

CHAPITRE II. Responsabilité et coexistence entre cultures

…

Article 5. Le chapitre III du titre VI du livre VI du code rural est complété par deux articles L. 663 10 et L. 663 11 ainsi rédigés:

« *Art. L. 663 10.* I. Tout exploitant agricole mettant en culture une variété génétique ment modifiée dont la mise sur le marché est autorisée est responsable, de plein droit, du préjudice économique résultant de la présence accidentelle de l'organisme géné tiquement modifié de cette variété dans la production d'un autre exploitant agricole, dont les apiculteurs, lorsque sont réunies les conditions suivantes:

« 1° Le produit de la récolte dans laquelle la présence de l'organisme génétiquement modifié est constatée est issu d'une parcelle située à proximité d'une parcelle sur laquelle est cultivée cette variété et a été obtenu au cours de la même campagne de production;

« 2° Il était destiné, lors de la mise en culture, soit à être vendu en tant que produit non soumis à l'obligation d'étiquetage mentionnée au 3°, soit à être utilisé pour l'élaboration d'un tel produit;

« 3° Son étiquetage est rendu obligatoire en application des dispositions communau taires relatives à l'étiquetage des produits contenant des organismes génétiquement modifiés.

« II. Le préjudice mentionné au I est constitué par la dépréciation du produit résultant de la différence entre le prix de vente du produit de la récolte soumis à l'obligation d'étiquetage visée au 3° du I et celui d'un même produit non soumis à cette obliga tion.

« III. Tout exploitant agricole mettant en culture une variété génétiquement modifiée autorisée à la mise sur le marché doit souscrire une garantie financière couvrant sa responsabilité au titre du I.

[*] Available at http://www.senat.fr/leg/tas07 062.html.

« IV. Un décret en Conseil d'État précise les modalités d'application du présent article.

« *Art. L. 663 11*. Les dispositions de l'article L. 663 10 ne font pas obstacle à la mise en cause sur tout autre fondement de la responsabilité des exploitants mettant en culture une variété génétiquement modifiée, des distributeurs et des détenteurs de l'autorisation de mise sur le marché et du certificat d'obtention végétale. »

GERMANY

§ 36a Genetic Engineering Act[*] [Claims in connection with impairment of use]. (1) The transfer of characteristics from an organism arising from genetic engineering work, or other dispersal of genetically modified organisms, shall constitute a significant impairment in the sense of Section 906 of the Code of Civil Law, if, contrary to the intention of the party with the right of use, the transfer or other dispersal means that products in particular

1. cannot be placed on the market, or
2. under the provisions of this Act or other provisions, may be placed on the market only if labelled with a reference to the genetic modification, or
3. cannot be placed on the market with a label that would have been permitted under the relevant legal provisions for the production method.

(2) Compliance with good professional practice under Section 16b (2) and (3) is deemed to be economically reasonable in the sense of Section 906 of the Code of Civil Law.

(3) When assessing the usual local situation in the sense of Section 906 of the Code of Civil Law, it shall not be considered whether products are produced with or without genetically modified organisms.

(4) If, in the actual individual circumstances, several neighbours may have caused the impairment, and it is not possible to determine which of them has caused the impair ment by their actions, each of them shall be liable for the impairment. This shall not apply if each of them has caused only part of the impairment and it is possible to divide the compensation between the perpetrators in accordance with Section 287 of the Code of Civil Procedure.

§ 906 BGB [Introduction of imponderable substances].[**] (1) The owner of a plot of land may not prohibit the introduction of gases, steam, smells, smoke, soot, warmth, noise, vibrations and similar influences emanating from another plot of land to the extent that the influence does not impair the use of his plot of land, or impairs it only to an insignificant extent. An insignificant impairment is normally present if the limits or targets laid down in statutes or by statutory orders are not exceeded by the influences established and assessed under these provisions. The same applies to values in general administrative provisions that have been issued under section 48 of the Federal Environmental Impact Protection Act [*Bundes Immissionsschutzgesetz*] and represent the state of the art.

[*] Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1148700.

[**] Available at http://www.gesetze im internet.de/englisch_bgb/.

(2) The same applies to the extent that a significant impairment is caused by a use of the other plot of land that is usual in the location and cannot be prevented by measures that are economically reasonable for users of this kind. If the owner is obliged to tolerate an influence under these provisions, he may require from the user of the other plot of land reasonable compensation in money if the influence impairs a use of the owner's plot of land that is customary in the location or its income beyond the degree that the owner can be expected to tolerate.

(3) Introduction through a special pipe or line is impermissible.

IRELAND

Coexistence of GM and non-GM Crops in Ireland Report of the Working Group (excerpts)*

Chapter 8. Economic loss, liability and redress

(a) 8.1 Introduction

In accordance with the Commission Guidelines the issue of coexistence concerns the potential economic loss and impact of the admixture of non GM and GM crops, and the most appropriate measures that can be taken to minimise admixture. It is important to differentiate between the costs associated with implementing the coexistence measures in order to minimise admixture and the economic loss arising through reduced market value or market accessibility following the admixture of GM and non GM crops.

Coexistence measures to minimise admixture are discussed earlier at Chapters 4 to 7 and include crop management measures, administrative and procedural requirements. The measures recommended in this Report take cogniscence of the principle that *'those who introduce a new production type should bear the responsibility of implementing the farm management measures necessary to limit gene flow'*. The new production type is defined according to what is already most commonly practiced in the region.

Coexistence may also have other cost implications for non GM crop growers e.g.

- Taking of voluntary or additional measures to minimise admixture e.g. testing of home saved seed.
- Testing of crops for verification of GMO content might be regarded under civil law as a cost of operating a competitive business.

Where non GM crop growers voluntarily choose to impose additional or stricter re quirements on their production systems over and above the legal minimum, in order to gain market or price advantage, then non GM crop growers are responsible for ensuring those requirements are met and for meeting their associated costs, if any.

8.2 Economic loss

In the context of liability, the term economic loss, resulting from the admixture of GM and non GM crops, applies when a non GM crop grower incurs a loss as a result of the actions of a third party. The extent of this loss will depend on the:

* The full report is available at http://www.agriculture.gov.ie/index.jsp?file publicat/publica tions2005/gm_coexistence/index.xml.

Difference in the market value or, inaccessibility to certain markets, arising from hav ing to label non GM crops as GM when thresholds, as set out in Community legislation, have been exceeded. The economic loss is potentially greater for higher value crops such as organic produce.

Remediation measures for ensuring purity in subsequent crops and the associated costs. These costs may potentially be greater for organic crop production.

Duration of loss in market value and the period over which remedial action is required. This may extend beyond the current year of production in certain circumstances.

Such issues relating to economic loss necessitate the requirement to determine liability, assess the level of loss incurred and establish possible measures to redress such loss.

8.3 Liability

8.3.1 Background to legal liability in Ireland

There are three categories of liability:

i. Civil,
ii. Criminal,
iii. Administrative.

All three are relevant to the coexistence of GM and non GM crops, although the cir cumstances under which they apply and the consequences arising may vary.

(i) Civil liability

Civil liability applies when an individual wishes to claim damages against another indi vidual/organisation. The action is taken through the civil Courts. It is the only form of liability that may give rise to the payment of damages, or compensation.

Civil liability is essentially the liability of a defendant to compensate a claimant for personal damage or damage to his/her property:

a) in so far as this can be *quantified* in money terms,
b) the damage was *reasonably foreseeable* and not too 'remote'*,
c) the *burden of proof* is on the claimant, and
d) the claimant must also be owed a *duty of care* by the defendant.

(a) Quantification

The principal function of damages is to restore the person whose right has been invaded back to his/her previous position. It follows that there must be a protectable right, i.e.

* Remoteness of damage applies primarily in breach of contract cases, where the defendant will only be held liable for damages as may be fairly and reasonably be considered either arising naturally from the breach of contract, or which was foreseeable as being the result of a breach of contract at the time of agreeing the contract. Remoteness also applies in the tort of negligence, but whether the GM crop farmer is found liable depends on to whom the GM crop farmer owes a duty of care. If the person is outside the class of those to whom he owes a duty of care, even if that damage was entirely foreseeable, then the GM crop farmer may not be liable for it.

one that is recognised in law. For example, there is no such right that members of the public can invoke to prevent or rectify adverse impacts on public goods, such as the landscape or biodiversity.

Damages are paid based on the harm done and what is required to remediate that harm. What constitutes 'harm' is contentious however. For example, the loss of organic status for crops that are perfectly sound and capable of being sold on the open market may not be actionable harm. However the losses suffered through the inability to obtain the organic premium, or if the farm loses its organic status may be actionable harm. In such circumstances however, 'harm' may not be actionable where the damage is adventitious contamination below the threshold levels that determine the status of the crop.

It should be noted that in civil law, once harm has been established the defendant is li able for all financial losses flowing from it providing they are not too remote.

(b) Reasonably foreseeable

The damage must be foreseeable, as well as not too remote. The damage foreseen must also represent a real risk, in that it is justifiable not to take steps to eliminate a risk if it is small and the circumstances are such that a reasonable person, careful not to damage the interests of his/her neighbour, would think it right to neglect it such as when it may involve considerable and disproportionate expense to eliminate it.

(c) Burden of proof

As the burden of proof rests on the claimant, they must be able to demonstrate that any admixture was not caused by fault on their own behalf. Thus documentary evidence for the use of certified seed, or that home saved seed was tested prior to planting, or records to indicate that shared machinery was properly cleaned prior to use would all assist in this regard.

It should also be noted that responsibility for mitigating the risk of damage also rests with the injured party. Therefore if, for example, the defendant is a GM crop grower, then the responsibility for mitigating risk of damage rests not only on the GM crop grower, but also on his non GM crop neighbours, providing they have been made aware of his/her intention to cultivate GM crops. Thus, where a person intending to cultivate GM crops actively alerts his/her neighbours to this, those who might be at risk of ad mixture are advised to take measures to avoid this risk as, even assuming the GM crop grower might ultimately be liable for any damage caused, *the general obligation is to mitigate any possible damage, where it is reasonably practicable to do so, as failure to do so may affect the strength or credibility of any future claim for damages.*

This is one of the reasons a formal approval system for the growing of GM crops that requires consultation with farm neighbours, has merit in terms of mitigating potential economic losses associated with the cultivation of GM crops.

(d) Duty of care

Civil liability applies where there is a clear duty of care. Someone who is owed the duty of care can be described as 'persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am

directing my mind to the acts or omissions that are called into question'. Thus a claim ant must establish that the defendant owed him/her a duty of care and in doing so the Courts will examine whether imposing a duty of care would be fair, just or reasonable. Within the context of coexistence, the GM crop grower owes a duty of care to his/her farming neighbours.

Except under very specific circumstances, public bodies are not subject to a duty of care when they take decisions that are within the ambit of a statutory discretion due to it. This is to allow statutory bodies to implement regulations without the risk of litigation, as without such protection statutory bodies may be unwilling to regulate at all, even if the circumstances require it.

Civil liability is most likely to be in 'tort' or fault based, but civil liability in some cir cumstances is also **'strict'**, as opposed to fault based. In other words, damages may be recovered even in the case of no fault. It normally applies where one party is undertak ing an activity that entails a greater risk of loss to others than usual, and when it may be considered right that he/she accept the consequences if the loss materialises, however hard he/she tries to avoid this. The 'polluter pays' principle is an example of **strict li- ability** where the polluter pays for all the consequences regardless of whether or not he/ she was at fault. It may take the Courts to decide whether strict liability will apply to the growing of GM crops in certain circumstances.

Contractual liability may also arise for example under the Sales of Goods Act (1979), or if the terms of a tenancy agreement have been breached. Thus, contractual liability is relevant where seed is purchased that does not conform to its description, in cluding any descriptions relating to its GMO content. Strict liability also applies where the goods are not of satisfactory quality and in this sense, GMO seed and product is no different from any other. Contractual liability also applies where a tenancy agreement is breached, for example where a grower grows a GM crop on rented land where the landowner has forbidden it.

There are a number of **defences** against liability, even strict liability, which can be invoked. These include:

i. An 'Act of God'.
ii. The intentional acts of third parties provided appropriate measures were in place (i.e. vandalism).
iii. Compliance with a compulsory order from a public authority.

(ii) Criminal liability

Criminal liability applies if the sanction for an unlawful act or omission is penal i.e. a fine or imprisonment. Such a sanction is designed to punish the guilty defendant, but not to provide compensation for anyone who has been injured as a result therefore damages do not apply. The proceeds of fines are usually paid to the exchequer, thus a person who has suffered significant damage would still need to take civil proceedings to obtain full recom pense. The State is the only body that can take a case for criminal liability to Court.

(iii) Administrative liability

Unlike the majority of European countries, Ireland and the UK have what is termed administrative law, which is a system of regulatory powers that have been given by

statute to a variety of public and other authorities, whose exercise of them is subject to supervision by the Courts. In the context of coexistence, it is important, as it defines the responsibilities of the State when setting the coexistence measures and its obliga tions with regard to enforcement when those measures are breached. The powers may include the issue and service of 'stop' and 'enforcement' notices, coupled with a right of entry onto private property to ensure the notices are acted on.

Administrative law does not usually extend to the levying of fines or other penalties, nor to requiring compensation to be paid to third parties for past actions. Regulatory authorities may impose criminal sanctions if their orders are not complied with, but these are reserve powers to punish non compliance with the orders and not the original act or omission which gave rise to them.

Regulatory authorities have no legal obligation to act against a person in breach of the applicable rules if they consider it inappropriate or unnecessary. However, a regulatory authority may be considered to be in breach of its duty of care and therefore liable if it fails to take appropriate action, where it has the power to do so and the Courts deem it was appropriate to do so for example, against breaches of approval conditions to cul tivate a GM crop. Under some statutes a person responsible for damage can be required to remediate that damage such as the liability of a polluter to remediate any pollution he/she may have caused.

8.3.2 Determining liability

Responsibility for redress is linked to determining with whom liability lies. Where ad mixture occurs from the growing of GM crops, disputes can arise between seed suppli ers, land owners and tenants, haulage companies, contractors and growers, etc. in the same way as with conventional crop production. However, additional disputes, may arise between a number of parties that are specific to GM crop production and which would not be normally associated with the production of conventional crops including, for example:

(a) Between GM crop grower and non GM crop grower:

Where the dispute arises between the GM and non GM crop grower, two distinct sce narios are possible:

- Adventitious contamination occurs despite the fact that the GM crop grower has adhered to the coexistence measures.
- Adventitious contamination occurs where the GM crop grower is considered to have breached one or more of the measures.

(b) Between GM/non GM crop growers and the State:

Two distinct scenarios arise:

(i) Between the GM crop grower and the State where coexistence measures have been adhered to but where he/she is still held personally liable for damages. The GM grower may choose to seek damages from the State on the grounds of negligence, or the breach of duty of care, or of statutory duty on the basis that the coexistence measures failed to prevent adventitious contamination, for which she/he has been held liable.

(ii) Between the non GM crop grower and the State where the coexistence measures are adhered to, but where the GM crop grower is not held liable for damages.

It is therefore clear from the above that current law allows for many instances where GM crop growers and the State are possibly subject to liability being established against them. While leaving the determination of liability and redress i.e. payment to be made by the persons held liable for the damage and losses incurred, solely to the Courts is no doubt possible, its practicality may be questioned on a number of grounds. For ex ample,

- In the event of relatively small losses, would using the Court system be a reasonable approach in terms of both cost and timeliness?
- If the growing of GM crops were to become commonplace, could the unknown burden of litigation be handled by the Courts?
- Would a decision to leave recourse purely in the hands of the legal system prove to be a disincentive to farmers wishing to grow GM crops and therefore be construed as an indirect barrier to trade? Most EU countries acknowledge that proving li ability for adventitious contamination is difficult and may in some instances be impossible.

Taking a Court action may result in an injured party failing to receive any compensa tion, for example, where liability cannot be established.

The Commission Guidelines stipulate that the coexistence measures should be (i) ef ficient, cost effective and proportionate, (ii) should not go beyond what is necessary in order to ensure that adventitious traces of GMOs stay below the tolerance thresholds and (iii) should avoid any unnecessary burden for growers, seed producers, co operatives and other actors associated with any production type. Equally, and under competition law, the actions of the State should not prevent the development of a market, including a market for GMOs. This has implications for the legislative environment in which the industry operates and the freedoms or constraints it imposes upon it.

Furthermore, the Commission Guidelines stipulate that 'no form of agriculture, be it conventional, organic or agriculture using genetically modified organisms (GMOs) should be excluded within the European Union', and that 'farmers should be able to cultivate the types of agricultural crops they choose'. In order to allow this, and for the 'ability to maintain different agricultural production systems that are a prerequisite for consumer choice', the Commission Guidelines state that Member States should take measures to allow the coexistence of conventional, GM and organic crops.

With respect to the practicality of the Court system in the determination of liability and with the possibility of fear of litigation preventing farmers from choosing the pro duction type they prefer, it is therefore necessary to develop a system where damage to third parties is minimised, that is proportional, not anti competitive and where the right of the '*farmer* (GM and non GM) *to choose the production type they prefer, with out imposing the necessity to change already established production patterns in the neighbourhood*'[*], is respected.

[*] Article 2.1.7 of the Commission Recommendation 2003/556/EC on Guidelines for Coexist ence.

In this regard the Working Group examined other options for redress as outlined in the following section 8.4.

8.4 Alternatives to the Courts for redress of economic loss

8.4.1 Private settlements

Co operation between growers in resolving disputes that may arise over compensation for economic loss could be successful in many cases where the liable party can be iden tified. Affected parties should make every effort to reach agreements in this regard.

8.4.2 Insurance

Private insurance is an option that may offer protection and thus a reassurance to GM crop growers and their immediate neighbours, that in the event of a GM crop grower causing loss to a neighbouring farm, the insurance would cover their financial liability for that loss.

Insurance is predicated on establishing, in advance and on an actuarial basis, the likeli hood of, and level of loss occurring based on the actual risk involved. However, for GM cropping the level of losses are unpredictable and in many cases the level of loss caused cannot be easily foreseen or indeed quantified in advance.

To date, insurance companies have not been prepared to offer insurance to the growers of GM crops and at present this is not a realistic option. In the future, the insurance in dustry may decide to offer protection in relation to certain economic aspects associated with GM crop cultivation.

8.4.3 The establishment of a redress fund

In the absence of private insurance to mitigate the liability risks facing both the non GM and GM crop grower, the Working Group considered the creation of a fund as an alternative to insurance and until such time as the market provides this service. The creation of a fund offers advantages to both the GM and non GM crop growers, and to a certain extent the State, as follows:

It assists in the creation of a favourable environment whereby it offers protection to those who cultivate GM crops and their neighbours for losses they may incur as a result of the GM crop cultivation.

Specifically

It provides a more rapid means of addressing claims for economic loss compared with a Court based approach.

It provides reassurance to non GM crop growers who incur economic loss arising from GM crop cultivation that they will not be responsible for meeting those losses, and can have recourse to a non Court based process to seek redress. It also provides reassurance to the GM crop growers who have caused the economic loss that they are not personally liable for meeting the associated costs [see (iii) below].

It assists the State in meeting its obligations in relation to the Commission Guidelines.

It provides protection for GM crop growers in the event of the imposition of strict li ability in the case of no fault on the part of the GM crop grower.

It provides redress in the case of adventitious contamination where a grower lacks ad equate personal assets to cover the claimant's losses, and thus reduce any financial loss the claimant may incur as a result.

By virtue of being a rapid and cost effective process for providing redress, it may reduce the number of subsequent claims made in the Courts for damages. However, this does not preclude the individual from pursuing a subsequent Court case if he/she so chooses.

It reduces the State's exposure in cases where economic loss arises even though coexis tence measures have been adhered to i.e. the provision of redress through a fund means the GM crop grower is not personally liable for damages and is thus unlikely to counter sue the State should coexistence measures fail to prevent adventitious contamination of his/her neighbour's crop.

It provides baseline information, which may encourage private sector insurance compa nies to develop their own insurance services.

On the basis of the above, the Working Group is of the opinion that a fund for redress for economic loss arising from adventitious admixture above the legal threshold levels represents a useful approach to dealing with the issues of liability and redress until such time as the insurance market provides this service.

However, the creation of a fund represents a more interventionist approach to the grow ing of GM crops, and while in principle it may offer a number of benefits, there are practical considerations that should be addressed before such a fund is established. These are as follows:

(i) Source of funding

In addressing this question the Working Group was conscious that the benefits of a fund accrue to both GM and non GM crop growers alike. The size of the fund would need to be adequate to cover any economic loss that is calculated based on specific criteria as set down for access to this fund, irrespective of any benefits accruing to GM crop growers from the cultivation of GM crops.

Therefore the following are options for funding:

A levy on the GM crop sector (GM crop growers, biotech companies and other industry beneficiaries).

On the basis that the growing of GM crops will result in economic benefits to growers and the biotech industry, it could be argued that responsibility for the redress of eco nomic loss incurred by non GM crop growers should be covered by the main benefici aries i.e. the GM crop sector. Therefore, a fund developed by placing an obligatory levy on the GM crop sector would be a realistic option. However, this could be viewed as a levy or tax on GM crop cultivation and therefore be regarded as representing a barrier

to production, and as such, the size of this levy would need to be carefully considered. Other Member States (e.g. Denmark) have opted for this approach.

A levy on the general crop sector (GM and non GM crop growers)

A crop specific levy on all growers, both GM and non GM, is another option. This may be regarded as being disproportional and unwarranted on non GM crop growers, due to the fact that they carry out normal agricultural activity (as opposed to the new production type introduced by GM crop growers) and do not benefit economically from GM technology. However, non GM growers will be the main beneficiaries of the fund and contributions could be viewed as equivalent to normal insurance contributions.

Revenue from fines where coexistence measures are breached

Revenues generated from fines arising from breaches of mandatory coexistence measures could be used to maintain the fund. However, it is anticipated that this source of revenue would be very limited.

State funded

The Working Group is of the opinion that it is not the responsibility of the State to be directly involved in the provision of insurance for the economic risks associated with the growing of GM crops. However, the State has responsibility to put in place measures to protect non GM crop growers from direct economic loss as a result of the introduction of the new (GM) crop type. At the same time, these measures should not make prohibitive the cultivation of GM crops. In this regard, State contribution, either partially or wholly, to a redress fund could be considered. However, such a contribution would have to be on a cost recovery basis. The recovery of costs should be from contributions from the main beneficiaries i.e. the GM crop grower, biotech companies and other industry beneficiaries. This would support the current positive but precautionary policy the State established on GMO technology*.

(ii) Start up time and duration of fund

The fund could be established before the cultivation of GM crops begin or, after a period of time once cultivation of GM crops has commenced. The latter option would allow for a better assessment of the extent to which a fund would be required. The fund could be a permanent or temporary measure. This will depend on whether the insurance industry enters the market and the extent to which GM admixture of non GM crops occurs under the coexistence measures proposed in this Report.

(iii) Losses covered

Redress from the fund should be restricted to covering economic loss, as defined earlier in this chapter, as a result of the adventitious admixture of non GM produce by GMOs. In addition, the rules governing the distribution of any monies from this special fund should be very strict and controlled. To this effect, the Working Group has developed the following suggestions in relation to accessing the fund:

Economic loss should be calculated when the following criteria apply:

* GMO Consultation Paper 1998.

- When the statutory labelling GMO thresholds are exceeded in non GM produce.
- Where the loss is verifiable and quantifiable and based on the current year's cal culation.
- Where the loss is limited to the difference in the market value of the crop pre and post admixture and also those costs associated with remedial measures for ensuring purity in subsequent crops.
- Where losses may continue for more than one year provided there is sufficient evi dence that reasonable efforts were made to minimise them by the claimant.

Non GM crop growers must be able to provide reasonable evidence that the source of admixture was external and was through no fault of their own, e.g. testing of home saved seed, adherence to rotation interval, etc.

Access to the fund should be available to:

- Non GM crop growers, where the cause of admixture cannot be determined.
- Non GM crop growers where the liable party can be identified, but where attempts to reach a private settlement have failed. It could be argued that there is little incen tive for GM crop growers to adhere to the coexistence measures in this scenario. However, GM crop growers will be incentivised to adhere to coexistence measures by imposing sanctions in the event of breaches.
- Sectors of the farming community who choose to impose non statutory, additional or stricter requirements on their production systems in order to gain market or price ad vantage, should themselves be responsible for ensuring those requirements are met.

All and any other losses are still pursuable at the discretion of the claimant through the civil Courts.

Administration of fund

The Working Group is of the opinion an Independent Body should be responsible for the administration of the fund.

(b) Recommendations

I. Where a non-GM crop grower incurs a verifiable and quantifiable economic loss as a result of the maximum labelling threshold in his/her crop being exceeded through admixture by the actions of a third party, the affected grower should be compensated.

II. Where economic loss arises as a result of admixture, and where the liable party can be identified, every effort should be made by affected parties to reach a settlement.

III. A redress fund should be established for the redress of economic loss if and when the necessity arises. Such a fund should be established by the State but on a cost recovery basis. The recovery of costs should be from contributions from the main beneficiaries i.e. the GM crop grower, biotech companies and other industry beneficiaries.

IV. An Independent Body should be established to carry out the administration of the fund. Payments from this fund should be strictly controlled.

V. Notwithstanding the establishment of a redress fund, National law on liability would still apply and non-GM crop growers are entitled to pursue a civil action through the Courts.

LITHUANIA

Rules on co-existence of genetically modified crops with conventional and organic crops (excerpts)[*]

I. General provisions

1. The Rules on co existence of genetically modified (GM) crops and conventional and organic crops (hereinafter referred to as "the Rules") are aimed at regulating the possibilities of farmers to cultivate desirable GM plants while preventing migration of genetically modified organisms (GMOs) to fields of conventional and organic crops.

2. The Rules are drafted following Commission Recommendation 2003/556/EC of 23 July 2003 on guidelines for the development of national strategies and best practices to ensure the co existence of genetically modified crops with conventional and organic farming.

3. The Rules shall establish requirements for cultivation, maintenance, harvesting, stor age and transportation of GM crops to prevent migration of GMOs to fields of conven tional and organic crops, and shall provide for liability for GMO contamination.

4. The Rules are binding on farmers cultivating GM crops (agricultural operators) and national supervisory bodies responsible for supervision of GM crops and accumulation of information.

5. The Rules shall not be applied in cases of GMO release into the environment for any other purposes than for placing on the market.

6. For the purposes of the present Rules:

Genetically modified crops shall mean agricultural crops, vegetable crops, garden or ornamental plant nurseries, including propagation material in which the genetic mate rial has been altered using the techniques of genetic engineering in a way that could not occur naturally by mating and/or natural recombination. GM crops shall also in clude those conventional or organic crops in which GMOs are found after deliberate or adventitious cross breeding, the spreading of seeds or vegetative parts of plants the amount of which exceeds the established threshold for adventitious and unavoidable GMO presence.

[*] Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1260256.

GMO unique identifier shall mean a numeric code specified in Article 3.4 of Regulation (EC) No. 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food products and feed products produced from genetically modified organisms, and amending Directive 2001/18/EC.

National supervisory bodies shall mean the State Seed and Grain Service under the Ministry of Agriculture responsible for supervision of propagation material of GM seed crops and garden and ornamental plants, and the State Plant Protection Service respon sible for supervision of crops other than seed crops.

Threshold shall mean the threshold for adventitious and unavoidable GMO presence in all non GM products specified in Regulation (EC) No. 1830/2003 of the European Parliament and of the Council of 22 September 2003 in excess of which the products must be labelled as being or containing GMOs.

Co existence shall mean the co existence of GM crops with conventionally and organi cally cultivated crops of the same family, genus or species.

Garden or ornamental plant nursery shall mean a nursery in compliance with require ments for growing the seedlings, grafts and shoots and propagation of stocks of garden or ornamental fruit and berry plants.

Other definitions for the purposes of the present Rules are used as defined in the Law on Genetically Modified Organisms of the Republic of Lithuania (Official Gazette, 2001, No. 56 1976), the Law on Plant Seed Growing of the Republic of Lithuania (Official Gazette, 2001, No. 102 3623; 2004, No. 156 5687) and the Description of the procedure for deliberate release into the environment and placement on the market of genetically modified organisms, approved by Order No. D1 225 (Official Gazette, 2004, No. 71 2487) of the Minister for the Environment of the Republic of Lithuania.

VIII. Liability and obligations

27. In the case of mixing or cross breeding of GM plants with conventional and organic plants or in the case of spillage of GM plants or their products:

27.1. Competent national supervisory bodies must be informed of the incident;

27.2. Counter measures must be applied following the drafted action plan;

27.3. Spilled products must be disposed of;

27.4. Production mixed in storage must be placed on the market as a GMO or, if labora tory tests show the threshold has not been exceeded, may be placed on the market as non GM;

27.5. Crops where GMOs have spread must be disposed of or cultivated as GM crops observing all requirements of the present Rules with the exception of Articles 7.1 to 7.11.

28. Farmers shall be liable for infringements of requirements of the present Rules on GM crops in accordance with the procedure prescribed by legislation of the Republic of Lithuania.

29. GM crop producers shall not be liable for infringements of the present Rules ac cording to Resolution No. 840 of 15 July 1996 of the Government of the Republic of Lithuania on the approval of rules on exemption from liability in the event of force majeure (Official Gazette, 1996, No. 68 1652).

NETHERLANDS

HPA Regulation on the Coexistence of Crops 2005[*]

Regulation by the Commodity Board for Arable Farming (Dutch abbreviation: HPA) of 10 November 2005 regulating the cultivation of permitted or licensed GM crops along side organic and conventional crops (HPA Regulation on the coexistence of crops 2005)

The committee of the Commodity Board for Arable Farming;

Having regard to Articles 93, 95, 104(1) and (3) and 106 of the Industrial Organisation Act and Articles 3, 17 and 18 of the Decree establishing the Commodity Boards for Arable Farming;

Having heard the Crops Commission;

Has decided to lay down the following regulation:

(a) Section 1 Definitions

Art. 1. In this regulation, the terms below shall be defined as follows:

a) *commodity board:* Commodity Board for Arable Farming;
b) *committee:* commodity board committee;
c) *administrative board:* administrative board of the commodity board;
d) *chairman:* chairman of the commodity board;
e) *sector manager:* official appointed by the administrative board in that capacity and who is specifically responsible for crop matters;
f) *commission:* Crops Commission;
g) *coexistence:* the existence alongside each other of genetically modified, organic and conventional crops;
h) *operator:* a natural person or legal entity who runs a company covered by the scope of the commodity board;
i) *GMO grower:* an operator who grows GM crops or commissions a third party to do the same;
j) *non GMO grower*: an operator who does not grow GM crops and does not fall within the scope of the definition included under k;
k) *GMO free grower:* organic and other operators who wish to remain completely GMO free and have applied this principle right across their farms and can also

[*] Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1255325.

demonstrate that their consumers make specific market requirements with regard to the GMO free status of the end products;

l) GMO free defined market: market in which consumers make specific requirements with regard to the GMO free status of the end products;

m) consumers: distributors, retailers and consumers;

n) GMO Decree: Decree on genetically modified organisms under the Environmen tally Hazardous Substances Act (Bulletin of Acts and Decrees 1993, 435);

o) permitted: permitted for cultivation within the European market in accordance with the provisions in Section 3.3 of the GMO Decree or in line with Regulation (EC) 1829/2003;

p) licensed: licensed in accordance with the provisions contained in Section 3.2 of the GMO Decree;

q) GM crops: genetically modified potato, sugar beet and maize varieties;

r) potatoes: plants of the species Solanum tuberosum;

s) volunteer potatoes: potato plants growing from potato tubers or seed left behind on a plot of land;

t) sugar beet: plants of the species Beta vulgaris;

u) sugar beet bolters: sugar beet that has run to seed in the first year (combined with extending stems, also known as 'bolting');

v) volunteer sugar beet (weed beet): sugar beet growing from seed that has landed on a plot of land on which sugar beet was grown in a previous growing season;

w) maize: plants of the species Zea mays;

x) isolation distance: distance measured horizontally between the centre or first plant of the row of GM crops and the centre or first plant of the row of non GM crops of the same plant species with different growers;

y) plot of land: one continuous crop;

z) adjacent: next to.

(b) Section 2 Obligations

Art. 2. (1) The GMO grower shall give notice of his intention to cultivate permitted or licensed GM crops in writing and in good time and shall consult growers of adjacent plots of land and growers whose plots of land fall within the isolation distances of the permitted or licensed GM crops about the same in good time. The requirement to do so in good time shall be deemed not to have been met if the date of 31 January of the year in which he intends to grow the permitted or licensed GM crops has passed.

(2) The GMO free grower shall notify the GMO grower in writing and within two weeks of this GMO grower having met the provisions of paragraph 1 of the fact that he grows crops for the GMO free defined market, thus allowing the GMO grower to observe the necessary isolation distance.

(3) The GMO grower is required to give notice of his intention to grow permitted GM crops before 1 February by registering with the GMO Crops Register.

Art. 3. GMO growers are required to observe the following minimum isolation dis tances:

a in the case of non GMO growers: 3 m for potatoes, 1.5 m for sugar beet and 25 m for maize;

b in the case of GMO free growers: 10 m for potatoes, 3 m for sugar beet and 250 m for maize.

Art. 4. GMO growers, non GMO growers and GMO free growers shall all take mea sures in order to keep the products of permitted or licensed GM crops and non GM crops completely separate during cultivation, treatment, processing, transport and stor age. During cultivation, this particularly refers to:

a controlling volunteer potatoes;
b controlling sugar beet bolters;
c controlling volunteer sugar beet (weed beet).

(c) Section 3 Other provisions

Art. 5. (1) By Decree, having heard the commission, the committee may grant exemp tion from the provisions in Articles 2, 3 and 4 of this Regulation and prescribe more detailed regulations upon written and reasoned request.

(2) A Decree as referred to in paragraph 1 shall be published in the Trade Journal and shall enter into effect from the second day following its promulgation, unless otherwise stipulated in the Decree in question.

(3) On behalf of the committee, the sector manager shall be authorised, at the operator's written request, to grant exemption from the provisions in Articles 2, 3 and 4 and lay down more detailed regulations.

Art. 6. The provisions in, or pursuant to, Articles 2, 3 and 4 that impose obligations on operators shall also be binding upon other natural persons and legal entities that per form activities normally performed commercially by companies covered by the scope of the commodity board.

Art. 7. Infringements of the provisions in or pursuant to this Regulation are deemed to be actions which may necessitate disciplinary measures.

(d) Section 4 Final provisions

Art. 8. This Regulation shall enter into effect on a date determined by the chairman, on behalf of the committee, by Decree.

Art 9. This Regulation shall be cited as the HPA Regulation on the coexistence of crops 2005.

Explanatory Memorandum

(i) The Crops Commission

The primary sector, in the form of the Crops Commission that was specifically set up for this purpose, has decided to make recommendations to the HPA's committee.

The members of the Crops Commission are appointed by the committee on the recom mendation of the LTO [Dutch Organisation for Agriculture and Horticulture], NAV [Dutch Human Genetics Association], CNV Bedrijvenbond [Christian Trade Union Federation] and FNV Bondgenoten [Trade Union Federation]. As a consequence, the commission is an accurate reflection of the sector in question.

Given the specific nature of the area of policy on crop matters, the Commission's re sponsibilities are as follows:

- Issuing prompted and unprompted advice to the committee on crop matters;
- Drafting (or commissioning a third party to draft) regulations on crops and on funding projects and institutions, such regulations having to be established by the committee;
- Formulating (multi annual) budgets, to be established by the committee, so as to determine the funding needed to (co)finance projects and institutions;
- Taking decisions on spending the budget made available;
- Monitoring (co)funded projects and institutions;
- External consultations in relation to the task area;
- External representation of the commodity board in terms of the policy area of crop matters;
- Issuing advice on funding the commissions and the commodity board's secretarial and administrative support activities;
- Granting exemptions if given the opportunity by regulation.

(ii) Objective of the regulation

The regulation follows on from the Agreement on Coexistence in the Primary Sector of November 2004. The Agreement fleshes out the Dutch coexistence strategy which is required on the basis of the European coexistence guidelines (2003/556/EC) and Ar ticle 26 a of Directive 2001/18/EC. In its policy document of October 2003, the Dutch Government indicated that the responsibility for fleshing out coexistence lies, first and foremost, with those parties with a direct interest and that coexistence measures should be determined by such interested parties.

The objective of the regulation is to flesh out coexistence in the primary sector, where by measures must make it possible to grow permitted and licensed GM crops separately from organic and conventional crops. The regulation aims to leave maximum freedom of choice and contains the compulsory measures that prevent permitted and licensed GM crops from being mixed with organic and conventional crops, with all the attendant direct economic damage that this may entail.

The Agreement stipulates that the grower, provided he has met the obligations in this regulation, is no longer liable for damage resulting from mixing. In the exceptional event that damage were to result from such a situation, the parties to the Agreement have agreed that growers who have sustained damage, under certain conditions including that dam age can be demonstrated and that it is not self inflicted qualify for compensation to cover the direct economic damage (including loss of turnover and any costs of analysis) which may result from mixing. A damage fund will be set up for that purpose.

(iii) Explanatory note to definitions and articles

Article 1, sub section l: GMO free defined market.

This involves crops for which GMO alternatives are available.

Article 1, sub section o: permitted.

Genetically modified crops that, in accordance with the provisions in Section 3.3 (on purposeful introduction into the environment by introduction onto the market) of the

Decree on genetically modified organisms under the Environmentally Hazardous Sub stances Act (Bulletin of Acts and Decrees 1993, 435, most recently amended by Decree of 3 August 2004, Bulletin of Acts and Decrees 2004, 418) or in accordance with Regu lation (EC) 1829/2003 (on genetically modified food and feed, OJ L 268), are permitted on the European market for the purpose of growing crops.

Article 1, sub section p: licensed.

Genetically modified crops that are licensed in accordance with the provisions in Sec tion 3.2 (on the purposeful introduction into the environment for other purposes) of the Decree on genetically modified organisms under the Environmentally Hazardous Substances Act (see under Article 1, sub section o). This involves, inter alia, field tri als with GM crops for which a licence is required. Registration will coincide with the application for a licence from the Ministry of Housing, Planning and the Environment.

Article 1 sub section x: isolation distance.

Isolation distances must, in principle, be observed at the GMO grower's farm. The space within the isolation distance should be filled with crops of a different plant spe cies or no crops at all. Public spaces (ditches, roads, etc.) can be included in this. The isolation distances included in the regulation do not apply to spaces in between permit ted or licensed GM crops of different growers.

Upon selling, the GMO grower must meet the regulations of Regulation (EC) 1830/2003 (concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC).

As stipulated in the Agreement, isolation distances can be modified on the basis of consensus of the parties to the Agreement as new evidence comes to light, resulting, for example, from monitoring or research activities.

The isolation distances to be amended shall be submitted to the HPA committee in a draft amending Regulation.

Article 2(1) and (2).

Upon request, the HPA will make standard forms available for notifications in writing.

GMO growers will consult non GMO growers and GMO free growers about harmonis ing building and cultivation plans.

Article 2(3).

The GMO Crop Register is maintained for and on behalf of the Ministry of Housing, Planning and the Environment at the Regulations Service of the Ministry of Agricul ture, Nature and Food Quality.

Article 6.

The regulation pertains to all forms of cultivation, including field trials and allotment gardening.

Article 8.

The chairman will take a decision once he has received a unanimous proposal on this subject from the Agreement partners via the Coexistence Agreements Steering Com mittee.

Following entry into effect, the regulation will be assessed within three years of the first commercial GM crops being grown.

(iv) Further explanation of the need for public legislation, in this case the regulation

the commodity board is set up as an organisation based on public law for all arable farms. All farms are required to observe the compulsory measures in the framework of coexistence, as laid down in the Agreement and included in the regulation. Without the regulation, the coexistence of permitted or licensed GM crops and non GM crops could be at risk.

(v) Comparison against private alternatives

In order to ensure that the entire sector complies with the obligations (as included in public legislation), it is impossible to guarantee that this be achieved by private arrange ments, for example. The generally binding nature of public legislation is preferable to the voluntary nature of private arrangements. This is because, in order to meet the objectives, the obligations need to be met.

(vi) The implementation and enforcement aspects of the regulation

The obligations contained in the current regulation will be monitored in the framework of the crop certification schemes which include, or make reference to, binding mea sures. These comprise, for example the 'Food Safety Certificate in Arable Farming' or individual schemes for potatoes, sugar beet, grains, seeds and pulses and the GMP11 code for growing animal feed. GMO growers must have crop certificates of the relevant GM crops.

In accordance with Article 104 of the Industrial Organisation Act, as entered into force by Royal Decree (Bulletin of Acts and Decrees 2002, 642) on 1 January 2003, infringe ments of prohibitive provisions of this regulation result in disciplinary action. On the basis of court trial reports of the supervisors appointed by the committee, the chairman will bring cases before the disciplinary tribunal.

The judicial process of the disciplinary enforcement procedure is provided for in the Act on disciplinary jurisdiction within the industrial organisation 2004 which entered into effect on 1 April 2004.

The disciplinary measures that can be taken in the event of an infringement of the regulation include:

- reprimands;
- financial penalties up to € 4 500 maximum;
- publication of the ruling at the expense of the party involved;
- putting stricter monitoring in place on the farm of the party involved at the latter's expense for two years maximum.

If the value of the goods involved in the infringement, or the value of the unauthorised benefit that has been derived, either wholly or in part, from the infringement exceeds € 1 135, a financial penalty can be imposed in the sum of maximum € 11 250.

(vii) Financial implications of the regulation

The costs of enforcement are paid by the potato, sugar beet and maize growers as part of the monitoring costs in the framework of certification.

(viii) Allocation of committee powers

The committee is authorised to grant exemption from the provisions in Article 2, 3 and 4. Such exemptions will only be granted in exceptional circumstances. This involves exemptions for several growers in the face of natural disasters or epidemics, for ex ample.

On behalf of the committee, the sector manager is authorised to grant exemption from the provisions in Article 2, 3 and 4.

The circumstances under which exemption can be granted are exceptional. An exemp tion is granted by great exception and only upon approval of the parties to the Agree ment via the Coexistence Agreements Steering Committee. The conditions of exemp tion ensure that the implementation of the regulation remains as much as possible intact. An exemption will apply for a restricted period of time.

The exemption will also stipulate that the growers in question will notify the parties with a direct interest of the fact that they have obtained this exemption.

A circumstance in which exemption is necessary is the sowing seed production of sugar beet (exemption from the provisions in Article 4 sub section b).

PORTUGAL

Draft Decree-Law[*]

Decree Law which establishes, in the Ministry of Agriculture, Rural Development and Fisheries, together with the Directorate General for Crop Protection, the Compensation Fund intended to support possible damage, of an economic nature, arising from accidental contamination from the cultivation of genetically modified varieties

Decree Law No 160 of 21 September 2005 regulating the cultivation of genetically modified varieties aims to ensure their coexistence with conventional crops and with organic production.

The Decree Law lays down specific cultivation rules for genetically modified varieties by regulating activities, placing responsibility on those involved in the respective pro duction process and seeking to ensure compliance with the applicable European Union legislation on traceability and labelling of agricultural products. These provisions set a labelling threshold of 0.9% accidental contamination with genetically modified organ isms for products which are not genetically modified.

However, despite compliance by farmers with the cultivation rules laid down, it must be accepted that situations may occur in which sexually compatible plant species are accidentally contaminated at levels above 0.9%. If these situations are found to have occurred, the products produced must consequently be labelled as containing geneti cally modified organisms. This may cause the economic value of these products to be reduced, with negative consequences for the respective farmer.

In this respect, and in accordance with the provisions of Article 14 of Decree Law No 160 of 21 September 2005, a Compensation Fund is to be created which is intended to compensate farmers for possible economic damage suffered.

The Fund shall initially remain in force for five years but may be extended if this can be justified by technical or scientific reasons or due to economic impact.

The governing bodies of the Autonomous Regions have been heard.

Consequently:

Pursuant to Article 198(1)(a) of the Constitution, the Government hereby decrees the following:

[*] Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1272584.

Article 1. Object and nature

1. The Compensation Fund, hereinafter referred to as the "Fund", which is intended to support any economic damage arising from accidental contamination due to the cultivation of genetically modified varieties, is created within the Ministry of Agri culture, Rural Development and Fisheries, linked to the Directorate General for Crop Protection.

2. The Fund is established as a separate resource without any legal personality and the compensation awarded by this Fund shall be exclusively financial.

Article 2. Scope

The provisions of this Decree Law shall apply to unprocessed agricultural products in the first phase of marketing for which it is proven that these have been contaminated, at levels exceeding 0.9%, by the genetically modified organisms contained in the ge netically modified plant varieties whose cultivation is governed by the provisions of Decree Law No 160 of 21 September 2005.

Article 3. Administration

1. Without prejudice to the provisions of the following paragraph, the Fund shall be managed by:

a) The Directorate General for Crop Protection, with regard to technical matters, which shall for this purpose provide the necessary administrative and logistical support;
b) The Directorate General for the Treasury, with regard to managing the funds and respective resources.

2. The Fund Management Rules shall establish the terms of the management referred to in this Article and shall determine the conditions under which expenses shall be paid by the Fund. These Rules shall be approved by a joint order of the members of government responsible for finance and agriculture.

3. The Fund's expenses shall be those resulting from the costs incurred as a result of applying this Decree Law.

Article 4. Assessment Group

1. The Assessment Group is created in order to assess the requests for compensation.

2. The Assessment Group shall be responsible for assessing and deciding on the award of compensation, including calculating the respective amounts.

3. The Assessment Group shall be composed of:

a) One representative of the Directorate General for Crop Protection who shall chair the Assessment Group;
b) One representative of the Regional Agriculture Directorate, pursuant to para graph 4;
c) One representative of the Confederação dos Agricultores de Portugal (CAP) [Con federation of Farmers of Portugal];

d) One representative of the Confederação Nacional de Agricultura (CNA) [National Agriculture Confederation];
e) One representative of the Confederação Nacional das Cooperativas Agrícolas de Por tugal (CONFAGRI) [National Confederation of Farming Cooperatives of Portugal];
f) One representative of the Associação dos Jovens Agricultores de Portugal (AJAP) [Young Farmers' Association of Portugal];
g) One representative of the Associação Nacional dos Produtores e Comerciantes de Sementes (ANSEME) [National Seed Producers and Dealers Association];
h) One representative of the Associação Portuguesa das Indústrias de Alimentos Com postos para Animais (IACA) [Portuguese Association of Animal Feed Industries];
i) One representative of the Federação das Indústrias Portuguesas Agro Alimentares (FIPA) [Federation of Portuguese Agri Food Industries];

4. The representative referred to in subparagraph *b)* of the above paragraph shall come from the Regional Agriculture Directorate or from the respective services of the Au tonomous Regions which are responsible for the area where the agricultural holdings in question are located.

5. The Assessment Group shall meet when convened by its chairman who may, when ever appropriate, convene or invite other persons or entities.

6. The Assessment Group shall decide by simple majority of the votes cast by the permanent members who are present. In the event of a tie, the chairman shall have the casting vote.

7. No compensation shall be payable to the members of the Assessment Group for their participation in this Group.

Article 5. Financing

The Fund shall be financed:

a) From the taxes collected pursuant to this Decree Law;
b) From the income and property from which it benefits.

Article 6. Seed tax

1. An annual tax shall be payable on each packet of seed of genetically modified varie ties marketed or used in Portugal under the terms of this Article.

2. The marketing or use of packets of genetically modified maize seed shall be subject to a tax of €4 per packet of 80 000 seeds. Those packets containing a number of seeds above or below this figure shall be subject to a tax which shall be directly proportional to the number of seeds contained in these packets.

3. The amounts indicated in the above paragraphs may be updated annually through a joint order of the Ministers for State and Finance and for Agriculture, Rural Develop ment and Fisheries, in accordance with the coefficient resulting from the variation in the retail price index, excluding housing.

4. The taxes shall be collected by the State Treasury on behalf of the Directorate Gen eral for Crop Protection from seed producers or packagers or other entities, including farmers. These taxes must be paid by 31 October.

Article 7. Beneficiaries

The beneficiaries of the Fund shall be farmers, whether natural or legal persons, who can prove that they have suffered an economic loss due to the occurrence of accidental contamination exceeding 0.9% of their agricultural products produced.

Article 8. Eligibility criteria

1. Without prejudice to the provisions of the following paragraph, requests for compen sation which prove that all the following criteria are met shall be eligible:

a) The accidental contamination must have occurred in the same growing year and in a species sexually compatible with the species of genetically modified varieties cultivated in Portugal;
b) There must be proof of the contamination of the agricultural products produced, namely by means of the identification and quantification of the genetically modi fied organism present, determined in accordance with the provisions of the follow ing Article;
c) The seed used for sowing must be certified.

2. Compensation requests based on contamination caused by non compliance, by the farmer cultivating genetically modified varieties, with the technical rules laid down in Decree Law No 160 of 21 September 2005 shall not be eligible. These non complianc es shall be governed by said Decree Law and by the general law on civil liability.

Article 9. Sampling and analyses

1. The identification and quantification of the genetically modified organism present in the agricultural products produced shall comply with the provisions of this Article.

2. Sampling must be carried out in accordance with the international rules in force by sampling experts, namely the seed quality inspectors of the Regional Agriculture Directorates.

3. At least two samples must be taken from each batch to be analysed. These samples must be labelled with the identification of the sampling expert and the farmer, the date of collection, the name of the agricultural holding and the plot number. The expert must affix a seal so that the samples cannot be opened without damaging the seal. One of the samples shall be sent to the analysis laboratory and the other shall be delivered to the Directorate General for Crop Protection with the compensation request.

4. The analyses must be carried out by a laboratory which is duly authorised to perform these analyses, namely a laboratory within the European Network of GMO Laborato ries (ENGL).

5. The costs arising from the sampling and analyses shall be borne by the requester.

Article 10. Compensation request

1. Compensation requests shall be made to the Directorate General for Crop Protection by completing the specific form provided by this body to which the following docu ments must be attached:

a) Copy of the identity card or tax identification card of the requester;
b) Proof of the requester's bank identification number;
c) Copy of the purchase invoice for the seed used for sowing;
d) Copy of the certification label for each batch used for sowing;
e) Reports giving the results of the analyses carried out to quantify and identify the genetically modified organism;
f) Declaration made by the product's purchaser indicating the price agreed for the purchase of the uncontaminated product and the price applied to the contaminated product;
g) Copy of the documents proving the costs incurred for the sampling and analyses carried out.

2. The second sample collected, referred to in paragraph 3 of the above Article, shall be delivered with the request.

3. Requests must be delivered to the Directorate General for Crop Protection by 31 De cember of the production year at the latest.

Article 11. Request and assessment fee

1. A €100 fee shall be payable, to the Directorate General for Crop Protection on de livery of the compensation request, for each request submitted and for its subsequent assessment by the Assessment Group.

2. The amount indicated in the above paragraph may be updated annually through a joint order of the Ministers for State and Finance and for Agriculture, Rural Develop ment and Fisheries, in accordance with the coefficient resulting from the overall varia tion in the retail price index, excluding housing.

Article 12. Assessment of the request and decision

1. Once the requester has submitted all the required information, the Assessment Group shall be convened to assess the request and make a decision.

2. The Assessment Group may request additional information if it considers this neces sary in order to properly assess the request.

3. The Assessment Group's duly reasoned decisions refusing or granting the compensa tion requests shall be notified to the requesters by 1 March of the year following that in which the request was made.

4. If the request is granted, the compensation amount shall be calculated, to which shall be added the amount of the fee paid on delivery of the request. Payment shall be made within 10 working days of the request being approved.

5. No compensation shall be awarded when it is found that the requester has acted negligently or fraudulently in such a way that this has contributed to the contamination or has caused this.

6. If it is proven that the farmer causing the damage has acted fraudulently or negli gently and if the State pays out compensation, it shall have a right of redress against the guilty parties.

Article 13. Approval

The Assessment Group's decisions to award compensation shall be subject to approval by the Minister for Agriculture, Rural Development and Fisheries.

Article 14. Compensation limit and apportionment

1. The financial compensation to be awarded each year shall be limited to the amount available in the Fund for this year.

2. When the amount available in the Fund is not sufficient to pay out all the calculated compensation to be awarded in a given year, the amounts of this compensation shall be recalculated in proportion to the amount available.

3. If the amount available in the Fund is not used up in a given year, it shall be carried forward to the following year and capitalised.

Article 15. Validity

1. The Fund hereby established shall remain in force for five years but may be extended if this can be justified by technical or scientific reasons or due to economic impact.

2. The terms under which the Fund shall be closed and then settled or under which it shall be extended shall be determined by a joint order of the Ministers for Finance and Public Administration and for Agriculture, Rural Development and Fisheries.

SLOVENIA

Draft Coexistence of Genetically Modified Plants and Other Agricultural Plants Act (excerpts)*

I. General Provisions

Art. 3 [Meaning of terms]. The terms used in this Act shall have the following mean ings ascribed to them:

1. GMPs are agricultural plants that are genetically modified organisms (hereinafter: GMOs) under the regulations governing GMOs;
2. GMP species are genetically modified plants of a specific agricultural plant species;
3. a unique identifier for GMOs is a code used to identify a specific GMO and as signed in accordance with Commission Regulation (EC) 65/2004 of 14 January 2004 establishing a system for the development and assignment of unique identi fiers for genetically modified organisms (OJ L 10 of 16 January 2004, p. 5);
4. coexistence is the cultivation of agricultural plants in a specific area under condi tions and using methods that allow a choice to be made between GMP cultivation and conventional, organic or other forms of cultivation;
5. an agricultural holding is a holding entered in the register of agricultural holdings under the act governing agriculture;
6. a farm is a form of organisation of an agricultural holding under the act governing agriculture;
7. a member of a farm is a natural person defined as a member of a farm under the act governing agriculture;
8. a GMP producer is a natural or legal person who is the head of an agricultural holding under the regulations governing agriculture, and who is in possession of a decision authorising the cultivation of GMPs at this agricultural holding;
9. the cultivation of GMPs in the open air is the cultivation of GMPs on a specific graphic unit of use of agricultural land (hereinafter referred to using the Slovenian acronym GERK) without the use of any form of shelter, or cultivation under protec tive sheeting (including mobile tunnels) or using other covering materials;
10. the cultivation of GMPs under shelter is the cultivation of GMPs on a GERK on which the actual land use is designated, under the regulations governing records of actual use of agricultural and forestry land, as "1190 Greenhouse";
11. a GERK is, under the act governing agriculture, a united area of agricultural or forestry land with the same actual land use, used by one agricultural holding and designated by means of a unique identification number (GERK PID);

* Available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction getdraft&inum 1305441.

12. other land is all land not entered in the GERK records under the act governing ag riculture, with the exception of forestry land and aquatic and other areas, on which agricultural plants of the same species as the GMPs, or of a species related to them, may not be cultivated.

Art. 4 [General conditions for the cultivation of GMPs]. (1) GMPs may only be cultivated pursuant to a decision authorising the cultivation of GMPs issued pursuant to this Act by the ministry responsible for agriculture (hereinafter: the Ministry), if the GMPs are cultivated on a GERK or GERKs entered in the GERK records of an agricul tural holding whose head is a GMP producer under the act governing agriculture, and if the GMP producer:

- meets the prescribed conditions regarding professional training in the management of GMPs;
- can provide assurances that measures will be taken on those GERKs on which GMPs are cultivated, and on GERKs and other land located in the buffer zone, to ensure the coexistence prescribed under this Act;
- and declares that they will meet the obligations of a GMP producer referred to in Article 9 herein.

(2) A GMP producer shall be deemed to be professionally trained to manage GMPs if they are in possession of a valid certificate attesting to the fact that they have passed the exami nation referred to in the second paragraph of Article 18 herein (hereinafter: examination certificate) themselves, or if the examination has been passed by another person on the agricultural holding responsible for the cultivation of GMPs. If GMPs are cultivated on a farm, the examination certificate must be held by a member of that farm.

(3) A GMP producer shall give assurances that the measures prescribed by this Act for buffer zones shall also be taken on GERKs and other land located in the buffer zone not used or owned by their agricultural holding, if they enclose with the application to cultivate GMPs the consent of those heads of agricultural holdings who use GERKs in this buffer zone, and the consent of owners of other land located in the buffer zone.

VII. Compensation.

Art. 28 [Notification of damage]. (1) If the presence of GMPs is found in agricultural plants cultivated using a conventional, organic or other GM free method, or in their products, such that it could reduce the market value or usefulness of these plants or their products, the head of the agricultural holding may notify the competent inspectorate of the damage within eight days of the day the presence of GMPs was found in the agri cultural plants or their products.

(2) Notwithstanding the provisions of the preceding paragraph, a head of an agricul tural holding who in accordance with Articles 7 or 12 herein gave their consent to a GMP producer to cultivate a specific GMP species on a specific GERK or neighbouring GERKs or their consent to the agreement on the cultivation of GMPs in a specific area, and who cultivated agricultural plants of the same species as the GMPs, or of a species related to them, may not submit a notification.

(3) On the basis of the notification referred to in the first paragraph hereto, the competent inspector shall examine the data in the register of GMP producers and the documenta tion held by the head of the agricultural holding that notified of the damage (hereinafter:

notifier of damage) and perform an on the spot check to ascertain whether there is any deliberate presence of GMPs in agricultural plants or their products. As part of the on the spot check, the inspector shall inspect the GERK on which the notifier of damage is cultivating agricultural plants in which the presence of GMPs has been detected, as well as all GERKs and other land located in the buffer zone laid down according to the regulations referred to in the eighth paragraph of Article 6 herein, if agricultural plants of the same species have been cultivated on these GERKs or other land. The inspector shall take any required official samples in order to establish the presence of GMPs in agricultural plants or their products. The inspector shall compile records of checks and samples. These records shall contain findings on the deliberate or adventitious presence of GMPs in agricultural plants or their products.

(4) It shall be deemed that the presence of GMPs in agricultural plants or their products is deliberate if the competent inspector finds, on the basis of the check referred to in the preceding paragraph, that:

- the notifier of damage cultivated GMPs on the inspected GERK without the autho risation referred to in the first paragraph of Article 4 herein;
- GMPs were cultivated without the authorisation referred to in the first paragraph of Article 4 herein on a GERK or other land located around the inspected GERK within the buffer zone laid down according to the regulations referred to in the eighth paragraph of Article 6 herein;
- the presence of GMPs in agricultural plants or their products is the result of a vio lation of the obligations of a GMP producer referred to in Article 9 herein or a violation of the obligations of a head of an agricultural holding in an area for the cultivation of GMPs referred to in Article 15 herein.

(5) The legal or natural person that caused the damage that has arisen on account of the deliberate presence of GMPs in agricultural plants or their products shall be held liable for it.

(6) Unless this Act determines otherwise, the provisions of the Code of Obligations concerning general damage liability shall apply to liability for damage that arises on account of the deliberate presence of GMPs in products.

Art. 29 [Adventitious presence of GMPs in agricultural plants and their products]. (1) If the inspection records on the check referred to in the third paragraph of the pre ceding article indicate that the deliberate presence of GMPs in agricultural plants and their products cannot be established, or if deliberate presence is the result of ecological factors such as insects or the wind that caused the unforeseen transfer of genes from GMPs to other agricultural plants of the same species as the GMPs, or of a species re lated to them, the presence of GMPs in other agricultural plants and their products shall be deemed to be adventitious.

(2) The Republic of Slovenia shall bear objective liability for damage that arises as a result of the adventitious presence of GMPs in agricultural plants or their products to a level determined in accordance with Article 30 herein. The Ministry shall secure funds for the payment of compensation.

(3) The head of an agricultural holding that suffers damage resulting from the adventi tious presence of GMPs in agricultural plants or their products may notify the Ministry of the damage within 30 days of receipt of the inspection records.

(4) The Ministry shall lay down in detail when it shall be deemed that the adventitious presence of GMPs in products is the result of the factors referred to in the first para graph hereto.

Art. 30 [Level of compensation]. (1) The Ministry shall set the level of compensa tion for the adventitious presence of GMPs in agricultural plants and their products by decision in an administrative procedure on the basis of the inspection reports and of the evidence enclosed with the notification of damage by the notifier of damage, which must indicate the surface area of cultivation and the loss of income resulting from the reduced value of agricultural plants and their products that contain GMPs. The level of compensation shall be set by a special committee appointed by the Minister.

(2) Compensation shall be calculated as the difference between the market value of agricultural plants or their products that contain GMPs and the market value of agricul tural plants or their products that do not contain GMPs.

(3) Notwithstanding the provisions of the preceding paragraph, a notifier of damage that is engaged in a form of farming in which the use of GMOs is not permitted shall also be awarded special compensation amounting to a maximum of 40% of the costs that have arisen as a result of engagement in forms of farming in which the use of GMOs is not permitted, which shall be ascertained by the committee referred to in the first paragraph hereto.

(4) No appeal or administrative dispute shall be permitted against the decision on the level of compensation referred to in the first paragraph hereto. A notifier of damage that does not agree with the decision of the Ministry may, within 90 days of the issuing of the decision referred to in the first paragraph hereto, put forward a motion requesting that the competent court fix the level of compensation.

(5) If the Ministry fails to issue the decision referred to in the first paragraph hereto within 60 days of submission of the compensation request, the notifier of damage may put for ward a motion requesting that the competent court fix the level of compensation.

(6) The court shall decide on the requests referred to in the fourth and fifth paragraphs hereto in a non litigious procedure.

(7) The costs arising from the work of the committee referred to in the first paragraph hereto shall be covered from the state budget. Funds for the work of the committee shall be secured by the Ministry.

(8) The Minister shall lay down in detail the methods and criteria for fixing the level of compensation and special compensation referred to in the second and third paragraphs hereto.

Art. 31 [Committee]. (1) The committee referred to in the preceding article shall be made up of at least three members with at least graduate qualifications in the field of agriculture or economics and with several years' work experience.

(2) The members of the committee must perform their tasks in a professional manner, in accordance with the rules of the agricultural profession and with plant protection and other regulations.

Explanation of Articles

Art. 28: This article lays down that an agricultural inspector shall check, at the request of a head of an agricultural holding who is cultivating agricultural plants using a con ventional, organic or other GM free method and who has suffered damage because the presence of GMPs in his agricultural plants and their products has lowered their market value or their usability, whether the presence of GMPs in these plants and products is deliberate. The article also lays down the circumstances in which the presence of GMPs in other agricultural plants and products is deemed to be deliberate, and that in such cas es the person that caused the damage shall be liable for that damage. In such cases the provisions of the Code of Obligations shall be applied in relation to damage liability.

Art. 29, 30 and 31: These articles lay down that the Republic of Slovenia shall be li able for damage that arises as a result of a reduction in the market value or usability of agricultural plants and their products on account of the adventitious presence of GMPs. Compensation is paid from the budget of the ministry responsible for agriculture. The level of compensation shall be fixed by a special committee appointed by the minister of agriculture. It is defined as the difference between the market value of a product con taining GMPs and that of a GM free product. Special compensation may be claimed if the damage was suffered by a head of an agricultural holding engaged in a sustainable, GM free form of farming. The procedure of claiming compensation and the possibility of appeal are also laid down.

SWITZERLAND

Federal Law relating to Non-human Gene Technology (GTL)[*]

Art. 30 GTL [Principles]. (1) Any person subject to the notification or authorisation requirement, who handles genetically modified organisms in contained systems, re leases such organisms for experimental purposes or markets them without permission is liable for any damage that occurs during this handling that is a result of the genetic modification.

(2) The person subject to authorisation is solely liable for any damage that occurs to agricultural or forestry enterprises or to consumers of products of these enterprises through the permitted marketing of genetically modified organisms, that is a result of the modification of the genetic material, if the organisms:

a. are contained in agricultural or forestry additives; or
b. stem from such additives.

(3) In the liability under paragraph 2 recourse to persons who have handled such organ isms inappropriately or have otherwise contributed to the occurrence or exacerbation of the damage is reserved.

(4) If damage is caused by any other permitted marketing of genetically modified or ganisms as a result of the modification of the genetic material, the person subject to au thorisation is liable if the organisms are faulty. He or she is also liable for a fault which, according to the state of knowledge and technology at the time when the organism was marketed, could not have been recognised.

(5) Genetically modified organisms are defective if they do not provide the safety that is to be expected, taking into consideration all situations; in particular the following should be considered:

a. the way in which they are presented to the public;
b. the use that can reasonably be expected;
c. the time at which they were marketed.

(6) A product made from genetically modified organisms is not considered defective for the sole reason that an improved product has later been marketed.

[*] SR 814.91; German version available at http://www.admin.ch/ch/d/sr/8/814.91.de.pdf (with links to French and Italian version). The translation is based upon the quotations in the Swiss report supra 542 ff.

(7) The damage must have been caused as a result of:

a. the new properties of the organisms;
b. the reproduction or modification of the organisms; or
c. the transmission of the modified genetic material of the organisms."

(8) A person is exempt from liability if he or she can prove that the damage was caused by an Act of God or through gross misconduct of the injured party or of a third party.

(9) Art. 42 47 and 49 53 of the Code of Obligations are applicable.

Art. 31 [Harm to the environment]. (1) The person who is liable for handling geneti cally modified organisms must also reimburse the costs of necessary and appropriate measures that are taken to repair destroyed or damaged components of the environment, or to replace them with components of equal value.

(2) If the destroyed or damaged environmental components are not the object of a right in rem or if the eligible person does not take the measures that the situation calls for, damages shall be awarded to the community responsible.

Art. 32 [Limitation]. …

Art. 33 GTL [Burden of proof]. (1) It is the responsibility of the person claiming dam ages to prove cause.

(2) If this proof cannot be provided with certainty or if production of proof cannot be expected of the claimant, the court may be satisfied with preponderant probability. The court may also have the facts determined proprio motu.

UNITED KINGDOM

DEFRA, Consultation on proposals for managing the coexistence of GM, conventional and organic crops[*]

Redress for Economic Losses

136. The Government's GM policy statement confirmed that Defra would consult stakeholders on "options for providing compensation to non GM farmers who suffer financial loss through no fault of their own", making it clear that any compensation would need to be funded by the GM sector itself, rather than by Government or non GM producers. This section explores the issues at stake and sets out potential models for a mechanism to redress potential economic losses.

137. The basic issue is that crops grown as non GM (conventional or organic) could be worth less if they must be sold as 'GM', because they have a GM presence above the EU 0.9% labelling threshold. This outcome would be unfair to the farmers affected, so there is a need to consider possible redress mechanisms should this occur. Existing means of seeking redress are unproven in this area. The application of the common law of negligence or private nuisance to GM cross pollination is untested and uncertain. It may also be difficult for a non GM farmer to establish who is the proper defendant for a case. This background creates uncertainty for both non GM and potential GM farmers.

(a) General Assumptions

138. Defra's view is that redress for economic loss should only be available to farmers if the GM presence in a non GM crop exceeds the 0.9% EU threshold. It would be a disproportionate burden on the GM sector to make it liable for redress on the basis of a threshold stricter than the relevant legal standard. The general coexistence regime will aim to keep GM presence below 0.9%, and it would not be appropriate for a redress mechanism to operate at a different threshold to that used for statutory coexistence measures.

139. In considering a redress mechanism a number of further assumptions underpin Defra's approach:

- GM crops will only be grown in the UK if there is a market for them, and it should generally follow that a non GM grower with an affected crop (GM presence >0.9%) will have a market in which to sell it.

[*] July 2006 (Crown copyright), http://www.defra.gov.uk/environment/gm/crops/pdf/gmcoexistcondoc.pdf, pp. 45 54.

- the potential need for a redress mechanism is predicated on non GM crops (conventional or organic) trading at a premium. If the market does not distinguish between GM and non GM (or if GM crops are grown which offer consumer benefits and themselves trade at a premium) no economic loss would occur to non GM farmers and therefore redress would not be required.
- if effective coexistence measures are in place, then the instances where non GM growers might face a loss due to a GM presence above 0.9% should be very infrequent; in addition, the value of any redress claim is likely to be relatively low (details on costs are given in the Regulatory Impact Assessment at Annex B). The possible implications of this are explored later on.
- the redress scheme should only cover direct financial loss from individual incidents.

(b) What claims for economic loss should be considered?

140. In establishing any redress mechanism the specific economic losses for which redress is available need to be clearly identified. The general or default position will be that the loss is the difference in crop value where a crop has to be sold as 'GM' instead of non GM or organic. However, a number of additional losses can be envisaged which need consideration.

(i) Loss in Crop Value

141. If a farmer grows a crop for sale as non GM but can then only sell it as 'GM', there may be circumstances in which there is no market for the GM equivalent (e.g. the non GM farmer may be growing sweetcorn maize while GM maize is only being grown as a forage crop and there is no market in which it is traded). The loss in this case would be the whole of the non GM or organic price that has to be foregone, as there is no GM market to sell into to mitigate the loss.

142. The EU 0.9% labelling threshold applies at the point where crops are sold off the farm. For crops like oilseed rape, beet or sweetcorn maize for processed food use, Defra expects that in all normal circumstances the relevant unit of production when considering possible redress will be the crop obtained from a whole field. This is because farmers will trade these crops, as a minimum, on a whole field basis. Therefore the issue of whether a non GM crop has a GM presence above 0.9% would be assessed on a whole field basis, and calculations of possible economic loss would be based on the value of the crop in the whole field.

143. The situation is less straightforward for sweetcorn maize intended for sale as individual corn on the cob. The cobs in the nearest row of plants facing the GM field might have a GM presence above 0.9%, but the remainder of the field could be within 0.9% and therefore still be saleable as non GM. It would be impractical to undertake widespread spot testing in the field to determine the precise extent of any excessive GM presence. At the same time it would be unreasonable to deem that the whole field must be treated as 'GM' because the 'leading' row of cobs has tested above 0.9%. Therefore, where tests for GM presence are undertaken in this context, Defra proposes a standardised approach broadly as follows:

- a first test is done on a sample of cobs in the first row nearest the GM crop; if this shows a GM presence above 0.9% a further test should be done on a sample of cobs halfway into the field.

- if the second test shows a GM presence above 0.9% the whole field must be treated as 'GM'; if the result is below 0.9%, the second half of the field can be sold as non GM and only the first half is deemed 'GM'.

144. If a conventional (non GM) forage crop has a GM presence above 0.9%, the EU rules still allow the farmer to feed this to his own animals and the associated products (meat, milk or eggs) do not have to be labelled as GM. Therefore from a regulatory standpoint there is no reason why an economic loss should occur and no need to con sider redress. An economic loss might arise because the farmer is subject to a supply contract which stipulates the use of non GM feed. But this would be a market led rather than regulatory requirement, and as such Defra does not think it would be appropriate for the Government to provide a specific redress solution (the Government's general stance is to facilitate the coexistence arrangements that can be regarded as necessary because of the EU 0.9% labelling requirement).

145. However, if an organic forage crop has a GM presence above 0.9% the EU organic standards regulation is expected to prevent the organic producer from feeding this to his own animals[*]. In this case, therefore, an economic loss could arise due to a regulatory constraint, and Defra would see a redress solution applying in these circumstances.

(c) Have we correctly identified the range of losses that might occur in crop values? What are your views on the proposed approach for dealing with the corn on the cob scenario?

(i) On additional losses

146. A non GM farmer with an affected crop (GM presence >0.9%) may face additional losses to that in crop value. Costs that may flow directly would include those incurred in testing the affected crop for GM presence; the cost of storing the crop separately, or longer than intended, as a result of being unable to sell as originally intended; or extra transport costs as a result of having to treat the crop as GM rather than non GM. Defra is open to arguments on this point, but to decide the scope of any redress mechanism a clear rationale will be required for determining those losses which are covered and those which are not.

147. A general point to bear in mind is that the more types of loss that are covered by a redress scheme, the more complicated and bureaucratic it may be to operate. Determin ing a loss in crop value should be relatively straightforward, but establishing the level of additional losses would entail further effort that could be disproportionate to the sum of money involved. If additional losses were to be covered, to minimise bureaucracy the best approach might be to adopt a system of fixed or standard costs (e.g. for crop storage per day), avoiding the need to assess actual costs in detail. An effective scheme would ensure that claims for redress are settled fairly promptly, the general idea being to avoid or improve upon the cost, bureaucracy and uncertainty that would arise if cases were left to be resolved through legal proceedings.

148. Other types of loss can be envisaged which Defra does not think should be part of a redress mechanism. For example, a farmer may lose subsequent business from a

[*] As noted at paragraph 111, the European Commission has proposed an amendment to Regula tion 2092/91 to make it clear that material above the 0.9% threshold cannot be used in organic production.

buyer as a result of being unable to fulfil a previous supply contract. A potential pur chaser may decide not to buy a particular non GM crop, or pay a reduced price, if it has been grown in the general locality of a GM crop, even though GM presence is below the required threshold. Alternatively, a farmer may take a precautionary decision not to grow a particular crop, to avoid the possibility of it being unacceptable because of its proximity to GM crops. An organic certifying body may decide to decertify or remove accreditation from either a field or an entire farm. Defra's view is that losses resulting from voluntary standards or market led decisions should not be covered by the redress mechanism, although compensation for these losses could still be sought through legal proceedings.

149. It is conceivable that losses may occur further up the supply chain. For example, a processing business may suffer a loss if it cannot meet its commitments because it is not supplied with a non GM crop. However, Defra expects that normal contractual arrangements will govern the relationship between the farmer and the purchaser of his crop, and relationships further up the supply chain, and in these circumstances it may be unnecessary for a formal redress mechanism to operate.

Should consequential or additional losses be covered by any redress mechanism? If so, which should be covered and why? How likely are these to occur? Are there any other types of loss that should be considered?

(d) Who should be entitled to claim redress and what eligibility criteria should they satisfy?

150. Strict eligibility criteria would need to be agreed to ensure that any scheme oper ates fairly and is not open to abuse. Redress should be limited to non GM farmers who can demonstrate that there is a GM presence above 0.9% in their crop through no fault of their own. In order to demonstrate no fault and a just claim on their part, non GM farmers may need to produce evidence, for example to confirm that:

- non GM seed was used (i.e. below the relevant seed labelling threshold adopted by the EU).
- the affected crop was destined for a premium non GM or organic market.
- any obligations arising from the coexistence regime had been complied with (e.g. accurate information was given in response to a GM neighbour's notification, and cropping plans were not subsequently altered in a way that compromised the re quired separation distance).
- the finding of a GM presence above 0.9% was based on samples taken in accor dance with a recognised protocol and tested at a suitable accredited laboratory.

151. This is not meant to be a definitive list but indicates the sort of criteria likely to be appropriate. Defra expects that there would need to be an adjudication process to de termine the eligibility of redress claims, including an appeal or arbitration mechanism (see paragraph 168).

152. If eligibility criteria were to be applied as set out above, a further issue for con sideration is whether a failure to meet one of these criteria in some minor way by a non GM farmer, which it can be demonstrated would have had no meaningful effect, should necessarily invalidate a claim for redress, or the extent to which the principle of contributory negligence should apply to reduce the compensation awarded under the scheme. In addition, it would also be necessary to consider whether eligibility for

compensation is dependent upon the excessive GM presence being identified before the affected crop leaves the farm, after which there may be other sources of GM presence.

What should the eligibility requirements be for non GM farmers to seek redress? Are there particular criteria that have not been highlighted?

(e) Who should pay any compensation?

153. The Government's policy statement made clear that any compensation should be funded by the GM sector. But this could take a number of forms.

(i) GM farmers who do not comply with the specified coexistence measures

154. This would have the advantage of placing the burden on those farmers most likely to be the cause of an excessive GM presence in neighbouring crops. The GM farmer would pay for the economic loss direct to the non GM farmer affected. This would pro vide a strong incentive for GM farmers to comply with coexistence measures. However, it would not cover the situation where an excessive GM presence arises through no fault of a GM farmer, or where fault cannot be specifically attributed.

(ii) All farmers growing GM crops

155. This would spread the burden evenly among all GM growers. However, it does not have the advantage of the first option of providing a direct incentive for GM growers to comply with coexistence measures, and it could be said to penalise unfairly those farmers who do comply.

(iii) GM seed companies

156. If GM seed companies were to fund a redress mechanism this is likely to involve the entire GM sector in the process. It would be a commercial matter between the companies and GM farmers to determine through their market relationship the precise allocation of the burden. For example, the seed companies could recover their costs through increased seed prices. It would also be open to them to recover some costs from GM farmers who have not complied with coexistence rules, by making compliance a condition of the GM seed contract. Making GM seed companies responsible would give them a clear incentive to ensure an effective coexistence regime. This in turn should increase confidence in the potential effectiveness of the regime and the degree of com pliance with it.

157. The burden could be applied equally on all GM seed companies, but a potentially fairer approach might be to distinguish between the companies in some manner. For example, the burden could be distributed according to market share the companies selling more GM seed would bear more of the burden. Alternatively, it may be possible in many cases to identify the company whose GM seed has given rise to the redress claim. But a desire to target the redress burden must be weighed against the simplicity and cost of running the scheme.

Are there any alternative ways of distributing the burden on the GM sector? Are there any strong arguments or pros/cons to each approach that have not been covered?

(f) Possible options for seeking redress

158. Having set out the relevant considerations above, Defra has identified three basic options by which affected non GM farmers could seek and be given redress for eco nomic losses. As noted earlier, it is expected that both the number of claims and their value will be small. The aim is to provide a mechanism that is clear, simple and propor tionate, and which minimises the burden on both the non GM farmer making the claim, and the GM sector in providing redress.

(i) Option 1: Seeking compensation under existing law

159. In principle, non GM farmers who suffer a loss would be able to seek redress through the civil courts under the current law. The non GM farmer could seek an in junction and/or damages under the common law of tort, claiming negligence or private nuisance. However, the application of the common law of negligence or private nui sance to GM 'contamination' is untested and uncertain. To recover economic loss, the non GM farmer would need to show either damage to his property and the loss derived from that damage or, where there was no such damage (i.e. pure economic loss), that the defendant had a duty of care to the non GM farmer such that recovery of that loss would be fair. It is not certain whether a GM presence in a non GM crop would be regarded as damage by the courts. A GM crop will only be grown commercially if it passes the legal risk assessment process, so it may be a contradiction to treat as a form of damage the presence of a legally approved GMO.

160. It may also be difficult for a non GM farmer to establish who is the proper de fendant. This background creates uncertainty for non GM and GM farmers alike. Any GM presence may have a number of sources, and accordingly it may be impossible for a non GM farmer to identify and seek redress directly from a given GM grower, for example by proving that he had not complied with the coexistence requirements.

161. In its report on coexistence and liability the AEBC also expressed concern that pursuing a legal case could be disproportionately time consuming and costly for farm ers. It could also impact on general relations within rural communities. Accordingly, this does not provide either clarity or simplicity, and Defra shares the AEBC view that it would be preferable if coexistence disputes were settled without recourse to litiga tion. Litigation would, however, remain an option if the claimant did not want to use the redress scheme or was unsatisfied with the settlement offered.

(ii) Option 2: A voluntary industry led scheme

162. An alternative would be for the GM sector to set up and fund a voluntary redress mechanism. To be effective, responsibility for this would need to rest with the GM seed companies, rather than farmers growing GM crops. It could be seen as a confidence building measure. A voluntary scheme may offer a number of advantages. It could be established more quickly and would be more flexible than a compulsory scheme. It is likely to provide a strong incentive for the industry to ensure that GM growers comply with the co existence rules.

163. A voluntary redress 'charter' is being developed by the farming and industry group SCIMAC, as part of its wider proposals for an industry led coexistence regime. The SCIMAC plan involves the GM seed companies committing to a charter whose aim

is to restore the market position of any non GM farmer whose crop exceeds the 0.9% threshold through no fault of their own. It envisages a number of ways that redress could be provided, including:

- direct replacement of affected produce (i.e. crop substitution)
- indirect replacement of affected produce (e.g. 'virtual' crop substitution, where af fected produce is directed to an outlet and the claimant paid as if the crop were as originally intended)
- direct cash compensation
- compensation 'in kind'

164. In terms of a delivery framework, SCIMAC favours a system for redress which mirrors or builds on existing supply chain arrangements as far as possible, and which recognises that a single prescriptive approach may not be the most effective in all cir cumstances. With this in mind, SCIMAC has given the following examples to illustrate potential delivery mechanisms:

- conditions of sale on GM seed: the sale of certified seed is governed by a licence between the relevant plant breeding company and seed merchants. The licence could specify that the merchants are signatories to the redress charter, and that sales of GM seed could only take place under specified conditions relating to coexistence and redress
- inter professional agreements (IPA): it could be a condition of GM seed sales that farmers enter into an IPA that commits them to comply with coexistence require ments, in return for being covered by the industry redress charter
- farm assurance scheme: Existing crop assurance schemes have confirmed to SCI MAC that they could readily incorporate coexistence provisions. It could be a con dition of GM seed sales that the farmer is a fully accredited member of a relevant assurance scheme, in return for being covered by the redress charter

(iii) Option 3: A statutory redress mechanism

165. If industry does not set up a voluntary scheme, or a proposed scheme is deemed unacceptable, then the Government would need to consider establishing a compulsory redress mechanism to be funded by the GM sector. This would probably require new primary legislation to make the GM sector strictly liable for compensation and to pro vide for:

- a requirement to pay compensation on the terms specified
- the establishment of a body to receive and adjudicate on redress claims (with the power to order payment), and an appeal mechanism
- the costs of the process to be charged to the GM sector

166. If a compulsory scheme made GM seed companies strictly liable it would also have to establish the mechanism by which a non GM farmer could recover any eco nomic loss. Possible models are:

a) Establishing a specific body with the power to require GM seed companies to pay redress directly to non GM growers. On the face of it this is an attractive option as it should be administratively straightforward. Redress would be payable on a case by case basis once the claim had been established.
b) A variation on the above would be for the Government to act as a buffer. As above, a specific body would adjudicate on claims and if a claim is confirmed the non GM

grower would receive redress from the Government. This would prevent any undue delay in the non GM farmer obtaining redress once the claim has been established. The Government would then have the power separately to recover the necessary funds from the relevant GM seed company (or companies).

c) Establishing a specific fund from which redress claims are paid. Defra's initial view is that this could be financed through charges on the GM seed companies, possibly through a levy on all GM seed sold. This would spread the burden across the GM sector according to market share. The money collected would be directly related to the amount of GM seed sold and hence the extent of GM cultivation. If the amount raised exceeded claims, the charge could be reduced or suspended, or the excess funds returned. However, requiring pre payment into a fund may create a sizeable pot of money waiting inefficiently for claims to be made against it. Administrating the levy to achieve the desired level of funding would be an added level of com plexity.

167. If a compulsory redress mechanism is preferred the practical arrangements would need to be set out in detail, but it is not proposed to do that at this stage. Defra would seek to make the arrangements as simple as possible, to minimise the burden on farmers wishing to make a claim, to ensure that redress can be paid without undue delay, and to minimise bureaucracy and costs. Defra would consult on the detailed arrangements before they were put in place.

168. In establishing a body to administer the system and assess claims there would be various factors to consider, such as cost (relevant to individual claims and overall level of use), the level of expertise necessary (including legal expertise) and independence. It would have to inspire confidence and work in a clear and transparent manner. There would need to be an appeals mechanism and, possibly, arbitration procedures. It is en visaged that administration costs would be met from the GM sector.

169. It would also be necessary to set out the criteria by which the level of economic loss is set. Defra has set out the principle that in the first instance this should be the difference in value between selling a crop as GM instead of non GM. If a pre existing contract specifying a price for the non GM crop was in place that would have been met except for the level of GM presence, then the value of the redress should be the differ ence between the value of that contract and the price achieved for the GM crop. If no pre existing contract is in place Defra would propose that redress is paid on the basis of a rolling one year average of any price difference between the GM crop and its non GM counterpart. This is on the basis that while the price of commodity crops varies quite significantly during the year, it is expected that any differential which exists between the price of GM and non GM crops would remain fairly constant. For an organic forage crop the loss recoverable would be the cost of sourcing suitable replacement forage. As the number of redress claims is expected to be small and the sums involved relatively small, Defra would favour establishing a simple administrative process for establishing the level of economic loss. Thus for additional losses such as the cost of testing, Defra would favour establishing standard rates if practical and equitable.

(iv) General consideration

170. In assessing options for a possible redress mechanism, the likely scale of the is sue needs to be borne in mind so that any arrangements entered into are realistic and proportionate. As noted at paragraph 139, Defra expects that in practice there would be

very few claims for redress, and any such claims would be for relatively small amounts. If this is the case, it may be disproportionate to incur more than minor costs to set up and administer a redress scheme, which might indicate a marked preference for a solu tion that keeps bureaucracy to an absolute minimum. Comparing possible voluntary (industry led) and compulsory (statutory) schemes, the former is likely to be cheaper and more straightforward to establish and operate. And in particular, the cost of setting up a statutory scheme could be relatively significant, given that in the first instance it may require new primary legislation to be adopted.

(v) Insurance

171. In its report the AEBC suggested that insurance products may become available over the longer term that would provide cover for possible GM related economic loss es. Whilst Defra remains open to the idea of an insurance market developing, it does not see this as a solution in the short to medium term. Therefore, the issues around a possible insurance market have not been explored in this paper.

Which redress mechanism do you favour and why? If a compulsory redress mechanism is your preferred option, which of the models at paragraph 166 should it employ?

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The numbers refer to the marginal notes and the letters refer to the reports: AT stands for Austria, BE for Belgium, CH for Switzerland, Comp for the Comparative Report, Conc for Conclusions and Recommendations, CY for Cyprus, CZ for the Czech Republic, DE for Germany, DK for Denmark, Econ for the Economic Analysis, EE for Estonia, ES for Spain, FI for Finland, FR for France, GR for Greece, HU for Hungary, IE for Ireland, Insur for the Option for Insurers Report, IT for Italy, LT for Lithuania, LU for Luxembourg, LV for Latvia, MT for Malta, NL for the Netherlands, NO for Norway, PL for Poland, PT for Portugal, SE for Sweden, SI for Slovenia, SK for Slovakia, UK for the United Kingdom: England & Wales.

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