Developing CDM Projects in the Western Balkans

Massimiliano Montini
Editor

Developing CDM Projects in the Western Balkans

Legal and Technical Issues Compared

Springer

Editor
Massimiliano Montini
Director, Environmental Legal Team
University of Siena
Italy

ISBN 978-90-481-3391-8 e-ISBN 978-90-481-3392-5
DOI 10.1007/978-90-481-3392-5
Springer Dordrecht Heidelberg London New York

Library of Congress Control Number: 2009938488

Cover illustration: The Secret Garden by Andreina Guerrieri

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Foreword

It is my pleasure to write a foreword for this publication, focusing on the implementation of the Kyoto Protocol with particular regard to the so-called Clean Development Mechanism (CDM) envisaged therein.

It represents an interesting contribution to the current fundamental worldwide debate on climate change and provides a valuable legal, scientific and technical perspective, lighting some shades on the interaction and the possible integration between the several challenging issues related to the implementation of the Kyoto Protocol and of the CDM.

This publication arises from the experience of the international cooperation programme of the Italian Ministry for the Environment Land and Sea with the Western Balkan Countries, performed with the legal assistance of the University of Siena – Environmental Legal Team, as a part of the broader technical support of a dedicated Task Force for Central and Eastern Europe.

In this framework, the book analyses the most relevant legal and technical issues related to the establishment of the institutional, regulatory and legislative framework for CDM scouting, assessment and concrete realisation.

Therefore, the scientific analysis provided by the publication is enriched and deepened by the concrete experience gained by the legal and technical experts, and presents the ratio of the political, institutional and regulatory choices made by the Western Balkan countries as well as the achievements of the Italian bilateral cooperation programme. At the same time, it points out the ongoing unresolved controversial aspects and the outstanding challenges characterising the implementation of the Kyoto Protocol in Albania, Macedonia, Montenegro and Serbia.

Corrado Clini
Director General, Department for Environmental Research and Development
Italian Ministry for the Environment, Land and Sea (IMELS)
Rome, 15 June 2009

Preface: The Experience of the Italian Cooperation for the UNFCCC and the Kyoto Protocol Implementation in the Western Balkans

Martina Hauser*

The Task Force for Central and Eastern Europe

The Task Force for Central and Eastern Europe is a working team within the Department for Environmental Research and Development of the Italian Ministry for the Environment, Land and Sea (IMELS). Firstly instituted in Belgrade in 2004 and subsequently moved to Rome, it develops and coordinates the activity of bilateral cooperation for environmental protection with the support of both Italian and local legal and technical experts. It has been established to create a geopolitical network in Central Eastern Europe in the environmental field. In particular, it focuses on the Balkan area promoting bilateral cooperation initiatives to encourage political and environmental dialogue.

The starting point of the Italian bilateral cooperation in the region was to provide institutional, legal and economic assistance to a group of countries wishing to get closer to the International and European Union standards. In particular, the Italian Ministry for the Environment Land and Sea offered its help to reform their institutional and legislative framework and to promote sustainable development, according to the relevant *acquis communautaire*. In the past few years, the Task Force extended its activities in the whole Balkan area and beyond (Albania, Bosnia Herzegovina, Macedonia, Montenegro, Romania, Russia, Serbia, Turkey, Ukraine) involving more than 50 people (coordinators, managers, local representatives, technical and legal experts). Up to now, IMELS signed about 16 Memorandum of Understanding (MoU) with related Technical Annexes and it is currently negotiating technical agreements with Russia and Turkey.

In the field of climate change, the MoUs concluded with the competent local authorities (Ministries for the Environment, Energy, Economy, etc.) have been the reference framework allowing the development of about 70 projects related to the implementation of the UNFCCC and the Kyoto Protocol. In particular, the agreements, through activities of scouting and drafting of the required legislative framework, promote the implementation of projects finalized at reducing greenhouse gas emissions as prescribed by the Kyoto Protocol.

* Director, Task Force for Central and Eastern Europe, Department for Environmental Research and Development, Italian Ministry for the Environment, Land and Sea (IMELS)

These projects, JI (*Joint Implementation*) and CDM (*Clean Development Mechanism*), effectively encourage the use of renewable energy, energy efficiency, waste management, afforestation and reforestation.

The Task Force's mission includes activities of technical and legal assistance for the harmonization of the Western Balkan's legislative systems with the environmental *acquis communautaire,* for the implementation of international conventions in the environmental field, for the improvement of institutional capacities and for the ratification of the Kyoto Protocol and the establishment of the competent national authorities (*Designated National Authorities – DNAs*) in charge of evaluating CDM projects.

In such a context, the legal assistance is performed by the Environmental Legal Team of the University of Siena, a dedicated group of lawyers and economists, while the technical assistance is mostly carried out by a team of technical experts acting in the Western Balkans.

Moreover, in order to guarantee the daily development of the bilateral cooperation the Task Force identified local representatives that maintain contacts with the national authorities and the Italian embassies in the countries involved in cooperation with the Italian Institute for Foreign Trade (ICE).

Finally, the Task Force is in contact with the most active international Institutions such as the World Bank, EBRD (*European Bank for reconstruction and Development*), EAR (*European Agency for Reconstruction*), UNDP (*United Nations Development Programme*), UNEP (*United nations Environment Programme*), UNOPS (*United Nations Office of Project Services*), OSCE (*Organization for Security and Co-operation in Europe*), USAID (*United States Agency for International Development*) in order to enlarge the possibility to support and finance the identified projects.

At present, the Task Force for Central and Eastern Europe is a reference point for all the countries mentioned above.

Environmental Cooperation in the Republic of Albania

The bilateral cooperation between the Italian Ministry for the Environment, Land and Sea and the Albanian Ministry for Environment, Forest and Water Administration started in May 2005 with the signature of a MoU aiming at the implementation of a specific technical assistance programme for the evaluation of GHG emission reduction through the establishment of the national institutional framework for the implementation of the UNFCCC and the Kyoto Protocol.

On the basis of the Annexes to the MoU, so far the Task Force provided a permanent support in the framework of international and EU environmental law, with particular regard to the achievement of the sustainable development goal.

In fact, the Task Force provided the Albanian Ministry for the Environment with the legal assistance for the identification of the most suitable model of DNA and for drafting the legislative acts necessary for its establishment.

Moreover, a set of rules of procedures for CDM projects evaluation by the DNA was identified and introduced in the Albanian legislative system with the legal assistance of the Task Force, who also actively supported, through its legal advisers, the identification of the sustainable development criteria to be met by CDM projects.

The legal activities described above were complemented by the technical assistance for the identification of the Country's potential in CDM projects development (the so called CDM *portfolio*).

The cooperation programme of the IMELS in Albania involves not only the MEFWA but also the Albanian Ministry for Energy, Trade and Economy (METE).

In this framework, one of the most relevant achievements of the Task Force is represented by the successful activities of legal support for the harmonization of the Albanian legislative framework in the energy field with the *acquis communautaire*.

To this respect, the Task Force assisted the METE in the following sectors:

- Gap analysis of the Albanian Power Sector Law and drafting of the necessary amendments in line with the EU applicable legislation
- Drafting of the Regulation on the procedures for granting the authorisation for new energy installations
- Drafting of the new Renewable energy Law

The assistance of the Task Force to the METE is integrated by the activities of wind energy potential resources assessment in the country, aiming at the development of a comprehensive database on this type of energy.

Environmental Cooperation in the Former Yugoslav Republic of Macedonia

The bilateral cooperation between the Italian Ministry for the Environment, Land and Sea and the Macedonian Ministry for the Environment and Spatial Planning started in 2005 with the MoU '*Cooperation in environmental and sustainable development framework*' focusing on environmental protection, natural resources improvement, environmental pollution reduction, legal assistance for the harmonization with the *acquis communautaire* and promotion of sustainable development through programmes, initiatives and joint projects. The MoU is complemented by the Annexes signed every year by the Parties to continue the cooperation programme.

The technical Annexes provide the procedures for technical and financial support to CDM projects and define the legal and technical activities to be performed in the framework of the Kyoto Protocol.

More in detail, according to the work plan developed on the basis of the Annexes to the MoU, the Task Force in cooperation with the ELT-University of Siena provides legal assistance to the Macedonian Ministry for the Environment and Spatial Planning in the drafting of the environmental legislation implementing the *acquis communautair*e and supports for the creation of the legislative framework for CDM approval.

The first area, namely the legal assistance in the process of harmonization with the EU *acquis*, is of particular interest since Macedonia is currently holding the status of official candidate to EU membership.

The activities of the Task Force in this sector were identified coherently with the other objective of the cooperation programme that is providing a permanent support for the UNFCCC and Kyoto Protocol implementation. Therefore they particularly focus on the analysis of the EU legislation on IPPC and Emission Trading, with the view to provide Macedonia with the support for drafting the necessary amendments to its Environmental Law, a framework Law regulating all the relevant aspects and issues in the environmental sector.

On the other hand, the Task Force support to Macedonia for the implementation of the UNFCCC and the Kyoto Protocol mainly focused on providing legal assistance for the establishment of the DNA and on identifying the potential carbon credits generation of the country by means of the CDM projects *portfolio* developed with the technical support of IMELS experts.

Environmental Cooperation in the Republic of Montenegro

The bilateral cooperation between the Italian Ministry for the Environment, Land and Sea and the Montenegrin Ministry for Tourism and Environment (now Ministry for Spatial Planning and Environmental Protection) started in 2004 with the MoU "*Cooperation on environmental protection*". The role of the Italian party, as defined in the MoU Annex I "*Technical assistance for Kyoto Protocol ratification and implementation of Green Certificate system*", aims at evaluating the opportunities for CDM projects developments in the framework of energy, waste and reforestation fields. It focuses on *small scale* CDM projects characterized by simpler procedures and lower cost than that of the *large scale* ones.

In addition to the environmental protection issue, the bilateral cooperation aims to support a National Strategy of Montenegrin Sustainable Development and the related identification of a National Action Plan for its implementation.

The objectives identified in the MoU and in its Annex required also an important set of activities of legal assistance for the establishment of the legislative and institutional framework for the promotion of sustainable development in the Republic of Montenegro. In this framework, the legal support focused on two levels: the first one aiming at creating the suitable legislative framework for hosting CDM projects in the country and the second one aiming at achieving the national legislation with the environmental *acquis communautaire*.

With reference to the first issue, taking into account that with the ratification of the Kyoto Protocol the Republic of Montenegro gained the status of Non Annex I Party capable to host CDM projects, the main aims of the MoU have been the support for the establishment of the DNA and the identification of the rules of procedures for CDM projects assessment. Moreover, the activities of legal assistance cited above were integrated by the technical assistance for the evaluation of the

potential carbon credits generation deriving from projects in the field of renewable sources, energy efficiency and reforestation projects.

With regard to the second issue, namely the harmonization with the EU *acquis,* the activities of the Task Force focused in particular on providing legal support in the following sectors:

- Analysis of the EU applicable legislation on Nature Protection with proposals for amendments of the Montenegrin legislative framework
- Drafting of the Law on Air Protection according to the EU relevant Directives

Environmental Cooperation in the Republic of Serbia

The bilateral cooperation between the Italian Ministry for the Environment, Land and Sea and the Serbian Ministry for the Environment and Spatial Planning started in 2002 with the signature of a first MoU on "*Cooperation for environmental protection*". The common will was to create an effective work plan for the development of a sustainable strategy for the Republic of Serbia not only at the economic level, but also at the social and environmental ones, through the exchange of the experiences achieved by ministerial and academic technicians and experts.

To this end, the first step was to provide legal and technical support for the creation of the legislative framework for the ratification of the Kyoto Protocol.

As the main objective of the Kyoto Protocol is to tackle climate change and to achieve the stabilization of the greenhouse gases at the level reached in 1990, an important activity was the implementation of a national inventory system to monitor the anthropogenic emissions. Actually, the collection of GHGs data is fundamental to set a baseline scenario to evaluate the concrete reduction potential of the country as well as to analyze the progress of the emission outputs.

Moreover, as required by the UNFCCC and the Kyoto Protocol, another step has been the development of a national programme for the drafting of the prescribed national communications on climate change, to be forwarded to the UNFCCC Secretariat.

These activities, coupled with the identification of the country's emissions reduction and carbon credits potential, were needed as a preliminary phase in order to make the Republic of Serbia a CDM projects host country.

Furthermore, a first scouting of possible CDM projects has been carried out in the energy field, with particular reference to small-hydro power plants, energy efficiency in industrial and civil field, and energy wind projects.

The overall successful achievement of the legal and technical activities described above was the development of the institutional and legislative framework necessary for the establishment of the DNA.

The cooperation between Italy and Serbia under the framework of the MoU cited above also aimed at providing the legal support for the legislative harmonization process of Serbian environmental legislation with the *acquis communautaire*.

Therefore, according to the work plan agreed by the Parties, the activities of legal assistance performed covered the following fields:

- Development of the Primary and Secondary legislation on air quality
- Development of the Primary legislation on environmental liability
- Analysis of the European and Italian legislation on energy efficiency with the aim of providing recommendations on how to improve and update the applicable Serbian legislation

Among the several activities of technical assistance provided to Serbia by the Task Force, the energy and environmental requalification programme in the industrial area of Pančevo (Pančevo Action Programme) represents one of the most important achievements. This programme provided an analysis on the state of pollution of the industrial area of Pančevo in order to perform the consequent activities of environmental risk monitoring, air quality protection, land and ground water reclamation, clean energy production, technologic requalification for control and prevention of risk in the industrial processes.

Concluding Remarks

From the analysis of the IMELS Task Force for Central and Eastern Europe activities it clearly emerges that this working team of legal and technical experts has performed, and still does, an important role in supporting Albania, Macedonia, Montenegro and Serbia in the fulfilment of their commitments for the implementation of the UNFCCC and of the Kyoto Protocol.

The activities performed focus on two levels: the first one related to providing legal assistance for the establishment of the institutional framework to host CDM projects (setting up the DNAs) and for the drafting of the legislative framework to assess CDM projects; the second one related to the technical identification of the carbon potential for each of the four relevant countries with the view to promote CDM projects development.

Moreover, the activities cited above were integrated by the ones related to the legal assistance for the harmonization of the Albanian, Macedonian, Montenegrin and Serbian legislation with the *acquis communautaire*. These activities contributed not only to speeding up the process of EU membership ambitions of the four Western Balkan Countries, but also greatly improved their possibilities of prompt and effective implementation of the UNFCCC and Kyoto Protocol goals.

Finally, but not less importantly, the legal and technical activities of assistance of the Task Force, be them already performed or still in process, help the Western Balkan Parties of the MoUs in the achievement of sustainable development, which is one of the most important goals of the UNFCCC and of the Kyoto Protocol legislative framework.

Acknowledgments

This book reports on the legal and technical activities of the bilateral cooperation performed by an interdisciplinary team of consultants operating under the umbrella of the Task Force for Central and Eastern Europe established by the Italian Ministry for Environment, Land and Sea (IMELS).

Therefore, I would like firstly to thank Mr Corrado Clini, Director General, Department for Environmental Research and Development at the IMELS, and Ms Martina Hauser, Director of the Task Force for Central and Eastern Europe.

Secondly, I would like to express my gratitude for contributing to the present publication to all the several authors of the various chapters, who are or have been all related to the Italian bilateral cooperation performed in the Western Balkans countries.

Thirdly, a special thanks goes to the following Members of the Environmental Legal Team, who kindly helped for the production of the book: Ms Alessandra Barreca for the scientific support, as well as Ms Francesca Romanin Jacur, Mr Gerardo Giannotti and, most notably, Ms Francesca Volpe for the editorial assistance. Moreover, I would like to thank the Department of Economic Law of the University of Siena where the ELT operates.

Finally, I would like to thank Ms Charlotte Tragard who performed a linguistic check on the manuscript.

Massimiliano Montini
Director, Environmental Legal Team
University of Siena

Contents

Contributors

Mariachiara Alberton
Ph.D. in Law and Economics (Siena), Researcher and Lecturer in European Union Law at the Department of Economic Law, University of Siena; Former Member of the Environmental Legal Team of the University of Siena; Lawyer; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Alessandra Barreca
LLM (London), Researcher at the Department of Economic Law, University of Siena; Programme Manager of the Environmental Legal Team of the University of Siena; Lawyer; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Julija Brsakoska Bazerkoska
MA in International Law (Skopje), Ph.D. Candidate (Cologne); former Member of the Environmental Legal Team of the University of Siena; former Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Slavko Bogdanovic
LLB, LLM, LLD (Novi Sad), Professor of Water Law and Environmental Law at the Faculty of Law of Business Academy Novi Sad; Member of the Environmental Legal Team of the University of Siena; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Lara Kerkez Bubalo
M.Sc. Mechanical Engineering (Belgrade), Clean Development Mechanism Expert and Technical Coordinator for Macedonia, Task Force for Central and Eastern Europe, Italian Ministry for the Environment, Land and Sea

Ermira Koçu Deçka
DESS "Practice of Human Rights", Lawyer; National Legal Officer at OSCE Presence in Albania; Member of the Environmental Legal Team of the University of Siena; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Tatjana Kosec
M.Sc. Biology, Country Programme Technical Coordinator, Task Force for Central and Eastern Europe, Italian Ministry for the Environment, Land and Sea

Olivera Kujundžić
MES (Podgorica), Member of the Environmental Legal Team of the University of Siena; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Massimiliano Montini
LLM (London), Associate Professor of European Union Law and Director of the Department of Economic Law, University of Siena; Director of the Environmental Legal Team of the University of Siena; Lawyer; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Svetlana Nojkovic
LLB (Belgrade), Senior Adviser to the Ministry of Environment and Spatial Planning of the Republic of Serbia

Emanuela Orlando
Magister Iuris (Oxford), Ph.D. Candidate, European University Institute (Florence); Member of the Environmental Legal Team of the University of Siena; Lawyer; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Ivana Radulovic
MSc Mechanical Engineering, Country Programme Technical Coordinator, Task Force for Central and Eastern Europe, Italian Ministry for the Environment, Land and Sea

Francesca Romanin Jacur
PhD (Milan), Post-Doc Researcher in International Law, Department of International Law, University of Milan; Member of the Environmental Legal Team of the University of Siena; Legal Adviser to the Italian Ministry for the Environment, Land and Sea

Andrea Rossi
MSc Environmental Policy, Lecturer in Environmental and Health Policy, Department of Economic Policy, Finance and Development, University of Siena; former Member of the Environmental Legal Team of the University of Siena

Branko Sikirica
MSc Mechanical Engineer (Belgrade), Clean Development Mechanism Expert, Task Force for Central and Eastern Europe, Italian Ministry for the Environment, Land and Sea

Vladimir Stefanovic
BSc Geological Engineer (Belgrade), Clean Development Mechanism Expert, Task Force for Central and Eastern Europe, Italian Ministry for the Environment, Land and Sea

Radmila Vlastelica Sutic
MSc (Belgrade), Mechanical Engineer, Clean Development Mechanism Expert, Task Force for Central and Eastern Europe, Italian Ministry for the Environment, Land and Sea

Acronyms and Abbreviations

AAUs	Assigned Amount Units
AGBM	Ad Hoc Group on the Berlin Mandate
AWG KP	Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
AWG LCA	Ad Hoc Working Group on Long Term Cooperative Action under the Convention
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CITL	Community Independent Transaction Log
CMP/COP-MOP	Conference of the Parties to the Kyoto Protocol
COP	Conference of the Parties to the UNFCCC
DCM	Decision of Council of Ministers
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
ETS	Emission Trading System
EU	European Union
GEF	Global Environment Facility
GHG	Green House Gas
IET	International Emission Trading
IMELS	Ministry for Environment, Land and Sea of the Republic of Italy
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate Return
ITL	International Transaction Log
JI	Joint Implementation
KP	Kyoto Protocol
LoA	Letter of Approval
LoE	Letter of Endorsement
LULUCF	Land Use Land Use Change and Forestry

MOP	Meeting of the Parties
MoU	Memorandum of Understanding
NR	National Registry
PDD	Project Design Document
PIN	Project Idea Note
PPA	Power Purchase Agreement
PPs	Project Participants
QELRC	Quantitative Emission Limitation Reduction Commitments
RES	Renewable Energy Source
SAA	Stabilisation and Association Agreement
SAP	Stabilisation and Association Policy
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technical Advice
SD	Sustainable Development
SHPP	Small Hydro Power Plant
SOP	Share of Proceeds
UN	United Nations
UNCSD	United Nations Commission on Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organization

Introduction

Massimiliano Montini and Alessandra Barreca

This publication arises from the professional practical experience gained in the past few years by an interdisciplinary team of legal and technical experts acting in the framework of the bilateral cooperation performed by the Italian Ministry for the Environment, Land and Sea (IMELS) in the Western Balkans.

In fact, in the last few years, IMELS signed specific Memorandums of Understanding (MoUs) with the Ministries for the Environment of four Western Balkan Countries, namely the Republic of Albania, the Former Yugoslav Republic of Macedonia (hereinafter Republic of Macedonia),[1] the Republic of Montenegro and the Republic of Serbia, with the main purpose of providing them with legal and technical assistance, through a dedicated Task Force, named "Task Force for Central and Eastern Europe", made of legal, economic and technical experts, engineers and economists, for the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP), as well as for paving the way for the development of the Clean Development Mechanism (CDM) projects in the abovementioned countries.

The Environmental Legal Team (ELT) of the University of Siena, a group of environmental lawyers and economists, is in charge of providing the legal assistance for the implementation of the MoUs objectives, by cooperating with the IMELS Task Force. It operates in the Balkan territory by means of dedicated project managers and a series of local experts.

Within such a framework, the ELT, building on its expertise in climate change law and policy, has the possibility to apply the International, European and Italian

Massimiliano Montini
Director, Environmental Legal Team, University of Siena

Alessandra Barreca
Programme Manager, Environmental Legal Team, University of Siena

[1]The Former Yugoslav Republic of Macedonia (FYROM), is registered with this name at the United Nations, but claims the possibility to use the name "Republic of Macedonia". Over the use of this name there is an unsettled dispute with the Republic of Greece. Therefore, in the present publication the name "Republic of Macedonia" will be used for mere reasons of shortness. This choice does not imply taking any position on the pending controversy over the use of the name which is to be settled under International Law.

legislative and regulatory experience to the selected Western Balkan countries and to address all the most relevant issues related to the implementation of the UNFCCC and the Kyoto Protocol, with the view to contribute to the establishment of the appropriate structure and the related rules of procedures for the development of CDM projects in the aforementioned countries.

On the basis of these premises, the ELT is now presenting in this publication the outcomes of the professional experience made in the Western Balkan territory by the above mentioned interdisciplinary group of experts and consultants. The book focuses on the main challenges experienced to the UNFCCC and KP implementation in the Western Balkans under the umbrella of the IMELS cooperation, with regard in particular to the establishment of a necessary institutional framework, based on the Designated National Authority (DNA), as well as the related rules of procedure for hosting CDM projects in the four Balkan Countries benefiting from the IMELS legal and technical assistance.

Hereinafter, a short presentation of the book content and its main purposes is provided.

The publication reports on the IMELS cooperation with the Western Balkan Countries involved, both from legal and technical–scientific perspective, with the view to provide a broad picture of all the relevant issues involved in the implementation of the MoUs and of the related climate change and environmental policies.

The book, which opens with a brief preface on the Task Force for Central and Eastern Europe mission and achievements by M. Hauser, Director of the Task Force, is divided into two parts. Part I focuses on the *Legal Issues on the Kyoto Protocol and its Implementation Experiences in the Western Balkans* and is composed of Section I on the *Legal Issues on the Kyoto Protocol, CDM and Carbon Market for CERs Transactions,* and Section II on the *Institutional Aspects of the Kyoto Protocol Implementation: the Establishment of the DNAs in the Western Balkans.* Part II deals with the *Technical Issues on the Kyoto Protocol and its Implementation Experiences in the Western Balkans,* and is divided into Section I on the *Technical Issues Related to CDM Implementation* and Section II on the *Technical Experience on CDM Implementation in the Western Balkans.*

Part I – Section I analyses the most relevant legal issues related to the Kyoto Protocol implementation, with a particular focus on the current and future regulatory perspectives of the climate change regime and of the CDM, as well as on the structure and purposes of the carbon market for emission credits transactions.

Chapter 1, by M. Montini, *The Kyoto Protocol in the International Environmental Law Context and the Post-2012 Scenario,* critically analyses the development of the international climate change law and policy regime, from its inception to the current legislative and regulatory framework, from the International, EU and Italian perspective, with a view on the possible post-2012 scenarios.

Chapter 2, by F. Romanin, *An Assessment of CDM: Lessons Learned and the Way Forward*, focuses the attention on the current CDM regulatory regime pros and cons, and highlights some interesting options on the future scenarios for the CDM regulation, with the aim to test the opportunities to enhance the potential role of this mechanism for the achievement of the overall objective of sustainable development.

Chapter 3, by A. Barreca, *Carbon Market and Carbon Contracts for CERs Transactions*, analyses the structure, functioning and objectives of the sale and purchase markets, and related legislative and contractual tools, for trading the CERs generated by CDM projects, with the purpose to clarify the existing links between the environmental and the financial dimension of the climate change policy.

Part I – Section II, *Institutional Aspects of the Kyoto Protocol Implementation: the Establishment of the DNA in the Western Balkans*, represents a novelty among the current climate change publications, since it moves from the general context to the practical one, by describing and analysing the IMELS/ELT experience of legal assistance to the four Western Balkan Countries in the UNFCCC and KP implementation.

It shows some interesting aspects emerged during this cooperation assistance, related to the institutional, administrative and legislative characteristics of the Balkan legal systems, sometimes resulting in barriers to be overcome for the achievement of sustainable development in Albania, Macedonia, Montenegro and Serbia.

This Section is made of an introductory article by M. Alberton, *The Designated National Authority (DNA): Requirements, Models, Competences, Best Practices,* plus four thematic articles, namely: *DNAs Experiences in the Western Balkans: the Republic of Albania* by A. Barreca, E. Decka; *DNAs Experiences in the Western Balkans: the Republic of Macedonia* by F. Romanin, J. Brsakoska Bazerkoska; *DNAs Experiences in the Western Balkans: the Republic of Montenegro* by E. Orlando, O. Kujundzic; *DNAs Experiences in the Western Balkans: the Republic of Serbia* by A. Rossi, S. Bogdanovic and S. Nojkovic. These thematic articles are reporting on the experience related to the DNA institutional, legislative and capacity building in those countries, in the framework of the implementation of the previously mentioned MoUs of the IMELS.

All the four thematic articles of Part I – Section II present a similar structure, insofar they start with a brief overview of the geographical, historical, institutional and political profile of the Country, and then analyse the steps, challenges and barriers faced by each Country (and directly experienced by the ELT) for the establishment of its DNA.

To this respect, a special attention is dedicated to the analysis of the structure and functioning of each of the four DNAs established in the Western Balkans under the IMELS/ELT legal assistance and, most importantly, of the set of rules and procedures developed for the CDM implementation.

Part II of the publication, *Technical Issues on the Kyoto Protocol and its Implementation Experiences in the Western Balkans,* analyses the other dimension of the IMELS activities in the Balkans, namely the technical assistance for the DNAs establishment and for CDM implementation.

Similarly to Part I, Part II – Section I on the *Technical Issues related to CDM Implementation* analyses some relevant general technical issues, related to CDM implementation, while Section II presents the technical experience gained on the CDM implementation in the four selected Western Balkan countries.

More specifically, Section I Chapter 9, *The CDM Project Cycle*, by R. Vlastelica Sutic, describes the technical aspects of this complex multi-stage process that every CDM project has to follow, namely the CDM project cycle.

Chapter 10, *The Identification of the CDM Potential in the Western Balkan Countries*, by I. Radulovic and T. Kosec, describes the assessment of the general carbon potential by sector as well as of the project based carbon potential in the Western Balkan Countries, conducted by the Italian Task Force in the framework of the definition of the so-called CDM portfolio for each of the four selected countries.

Part II – Section II, *Technical Experiences on CDM Implementation in the Western Balkans*, following the structure of Part I – Section II of the publication, focuses on the technical, rather than legal, aspects of the establishment of the suitable framework to host CDM projects in the Western Balkan area.

Mirroring the issues pointed out in the thematic articles of Part I – Section II on the legal dimension related to the DNAs establishment, these chapters describe in particular the actions taken and the challenges experienced by the Task Force experts in Albania, Macedonia, Montenegro and Serbia for the establishment of an effective technical framework for CDM projects implementation.

All the four thematic chapters (namely: *CDM Projects Experience in Albania* by T. Kosec, R. Vlastelica Sutic and I. Radulovic; *CDM Projects Experience in Macedonia* by L. Kerkez Bubalo; *CDM Projects Experience in Montenegro* by I. Radulovic and *CDM Projects Experience in Serbia* by V. Stefanovic and B. Sikirica), describe the activities performed to identify the potential for CDM projects in each of the four selected Western Balkan Countries (the so-called CDM portfolio), taking into account the countries' specific needs and peculiar features. Moreover, they analyse the main technical and procedural issues and challenges experienced in the development of such projects in the above mentioned countries.

Finally, the publication concludes with an assessment of the lessons learned in the establishment of the DNAs in the four selected Western Balkan countries, starting from the assumption that setting-up and making DNAs work is truly the most relevant prerequisite for the concrete implementation of CDM projects. In such a context, the analysis tries to highlight the legal and technical experience gained in the Western Balkan Countries which may be of a paramount importance also outside such a geographical area.

Part I
Legal Issues on the Kyoto Protocol and its Implementation Experiences in the Western Balkans

Section I
Legal Issues on the Kyoto Protocol, CDM and Carbon Market for CERs Transactions

Chapter 1
The Kyoto Protocol in the International Environmental Law Context and the Post-2012 Scenario

Massimiliano Montini

1.1 Introduction to the Climate Change Issue

The climate change issue arose in the late eighties, once the available scientific evidence started suggesting that the progressive increase in the greenhouse gases concentrations in the atmosphere may contribute to a large extent to the greenhouse effect. The greenhouse effect is a natural phenomenon, caused by a range of different gases including water vapour and CO_2. It makes the heat emitted from the earth's surface to be retained within the earth's atmosphere.[1] The progressive increase in the concentration of CO_2 in the atmosphere happening since the industrialization era[2] has increased the natural greenhouse effect. As a consequence, the earth is becoming warmer.[3] This gives rise to the so-called climate change phenomenon.

The institutional response at international level to the climate change issue has been quite rapid and efficient over the last 20 years, although it may be questioned

M. Montini
Director, Environmental Legal Team, University of Siena

[1] The earth's average temperature is at the moment around 14°. If the natural greenhouse effect did not exist, the average temperature would be around minus 19° (Source: 2007 IPCC Report).

[2] On the basis of the data included in the 2007 IPCC Report, the global atmospheric concentration of CO_2 raised up to 379 ppm in 2005, with respect to the pre-industrialisation value of 280 ppm.

[3] For instance, according to the 2007 IPCC Report, the earth's average temperature has risen by 0.74° in the period from 1906 to 2005. The warming is stronger over land areas than over the sea and accordingly it is strongest in the north. At the same time occurrences of heat waves and violent downpours have also increased, the oceans have risen, and the ice at the world's poles and on its mountains has begun to melt.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_1,

whether it has been sufficient to effectively tackle the climate change challenge.[4] The first reaction of the international community to the climate change issue dates back to the eighties of last century, when the General Assembly of the United Nations adopted the Resolution 43/53 of 6 December 1988 which defined climate change as a "common concern of mankind" to be addressed by the international community with a coordinated action at a global level.[5]

In the same year the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) established the Intergovernmental Panel on Climate Change (IPCC). The Panel was given the task of analyzing and verifying in an objective, open and interdisciplinary way the state of scientific evidence related to climate change in order to provide reliable scientific evidence upon which the international community could base its institutional and legal efforts to efficiently tackle climate change.

The IPCC since then has correctly and effectively performed its task of main "evaluator" of the existing climate change evidence, which had been conferred to it by the international community, by involving most of the more prominent worldwide experts in this field. In particular, the IPCC has produced so far four general reports on the state of science of climate change, issued respectively in 1990, 1995, 2001 and 2007.[6] Such reports are not the results of the own scientific research performed by the IPCC, but rather they represent the outcome of the independent evaluation performed by the IPCC experts on the existing interdisciplinary scientific evidence on the matter.

1.2 The UN Framework Convention on Climate Change

The first IPCC Report, published in 1990, confirmed that a rise in the temperature was already occurring and warned about the possible risks associated to this phenomenon. The IPCC findings, in fact, paved the way for a rapid negotiation of the first international legal instrument related to climate change, that officially started with the UN General Assembly Resolution 45/212 of 1990 that created an intergovernmental negotiating committee with the aim of drafting an international convention to fight against climate change.[7]

---

[4] On the climate change regime in general see F. Yamin, J. Depledge (2004) *The international climate change regime*. Cambridge University Press; D. Victor (2004) *The collapse of the Kyoto Protocol and struggle to slow global warming*. Princeton University Press; R. Verheyen (2005) *Climate change damage and international law*. Martinus Nijhoff Publishers; D. Freestone, C. Streck (2005) *Legal aspects of implementing the Kyoto Protocol mechanisms*. Oxford University Press; M. Bothe, E. Rehbinder (2005) *Climate change policy*. Eleven International Publishing; B. Metz, M. Hulme (eds) (2005) *Climate policy options post 2012: European strategy, technology and adaptation after Kyoto*; M. Peeters, K. Deketelaere (eds) (2006) *EU climate change policy: the challenge of new regulatory initiatives*; W. Th. Douma, L. Massai, M. Montini (eds) (2007) *The Kyoto Protocol and beyond: legal and policy challenges of climate change*. T.M.C. Asser Press.

[5] See resolution United Nations General Assembly (UNGA) 43/53 (1988).

[6] See the IPCC reports on the web site www.ipcc.ch

[7] See Resolution United Nations General Assembly (UNGA) 43/212 (1990).

Two years later, the result of the work of the negotiating committee was presented to the UN conference on environment and development, which took place in Rio in June 1992. During the conference the text of the UN Framework Convention on climate change (UNFCCC) was officially concluded and opened to signature.[8]

The international community as a whole gave a clear sign of its willingness to effectively tackle the climate change challenge through the rapid signature of the Framework Convention by over 80 countries in a few months. The Convention officially entered into force in 1994 and now it has 192 Parties, including the European Community together with its Member States. This very broad membership makes the Framework Convention a real instrument of global application with a very high level of participation of different stakeholders such as states, NGOs and other international organizations.

The preamble of the UNFCCC, recalling the already mentioned UN General Assembly Resolution 42/212, defines climate change as a common concern of humankind. Taking into account the global nature of the climate change phenomenon, it calls on all Parties for full cooperation for a common objective. In such a context, each Party should act on the basis of its respective possibilities, capabilities and economic and social conditions, following the principle of the common but differentiated responsibilities, which is embodied in the Framework Convention.

The main objective of the UNFCCC is contained in article 2 and refers to the stabilization of GHG concentration to the 1990 level, or more properly to the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". Such a level, according to the provisions of the UNFCCC, "should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner". On the legal nature of such a broad and general objective of stabilization of the GHG concentrations, there has been a wide discussion in the legal literature, but it seems that there is now a general understanding that it should not be considered an obligation of result with a binding character.[9] In other terms, according to a differentiation introduced by the International Law Commission in the framework of the work done on the Draft Articles on State Responsibilities, such a general stabilization target could be correctly qualified as an "obligation of conduct" rather than an "obligation of result".[10]

---

[8] See UN Framework Convention on climate change (UNFCCC), New York 1992, in International Legal Materials, vol. 31 (1992), p. 849 or in the web site www.unfccc.int

[9] See D. Bodansky (1993) *The UN framework convention on climate change: a commentary.* Yale J. Int Law 18:521; P. Sands (1992) *The United Nations framework convention on climate change.* RECIEL 1:270; R. Verheyen, *Climate Change Damage and International Law*, cit., p. 80.

[10] The differentiation between obligations of result (aiming at a concrete result) and obligations of conduct (aiming at a particular conduct), originally contained in the Draft Articles on State Responsibility of the International Law Commission in 1997 and later withdrawn in the final Draft of 1999, has been applied to the present case by R. Verheyen, *Climate Change Damage and International Law*, cit., p. 80.

The most relevant environmental legal principles, upon which the Parties should base their action when implementing the Framework Convention, as enshrined in article 3 thereof, are the principle of intergenerational equity, the principle of common but differentiated responsibilities, the precautionary principle and the principle of sustainable development.[11]

In particular, the principle of intergenerational equity requires the Parties to fight against climate change for the benefit of the present and future generations, whereas the principle of common but differentiated responsibilities implies that all Parties have to give their contribution to meet the objectives of the Framework Convention, but their specific obligations should be determined in accordance to their respective historical responsibilities in the increase of GHG concentration in the atmosphere and their present economic, financial and technological capabilities to tackle climate change issues. The principle of common but differentiated responsibilities is supplemented by the principle of equity, which requires the Parties to take into account the specific needs and circumstances of the developing countries in the definition of their respective obligations.

The Framework Convention is also deeply rooted in the precautionary principle, which calls for the adoption of anticipatory measures to prevent or minimize the causes of climate change and mitigate its adverse effects, even in the absence of full scientific certainty about the exact links between the increase of the anthropogenic GHG emissions and their effects on global warming. In fact, the relevance of such a principle was much higher in the early years of the implementation of the Convention, while it is becoming increasingly lower as the scientific evidence given by the IPCC reports shows the closer interaction between anthropogenic GHG emissions increase and the phenomenon of climate change.

Moreover, in the implementation of the Framework Convention the Parties have a right to, and should, promote sustainable development. This means that the specific actions to tackle climate change should be integrated in the national sustainable development policies of the Parties.

The decision to include such environmental legal principles in the main text of the Framework Convention rather than in the preamble was highly debated by the negotiators of the most relevant countries before its adoption. On the one side, there was a group of industrialized countries chaired by the United States, which opposed the introduction of a precise reference to such principles within article 3, proposing instead a more limited reference to them in the preamble, considering that they should play the role of guidelines rather than the one of binding legal principles. On the other side, there was the majority of the developing countries and China, grouped in the so-called G-77+China Group, which considered to be more useful the inclusion of such a series of environmental legal principles directly in the text

[11] On the most relevant environmental legal principles see M. Montini (2008) *The role of legal principles for environmental management*. In: C. Clini, I. Musu, M. L. Gullino (eds) Sustainable development and environmental management – experiences and case studies. Springer, p. 17 ff.; F. Yamin, J. Depledge, *The International Climate Change Regime*, cit., p. 66.

of the UNFCCC, so as to make them legally binding, in order to guarantee an easier and more correct implementation of the Framework Convention later on. This position, in particular, was premised upon the complexity of the climate change issue and the related difficulty to foresee a comprehensive legal regime to efficiently tackle it.

The subsequent article, namely article 4(1), contains the main obligations placed upon the Parties following the general objective of the stabilization of GHG emissions foreseen by article 2 and taking into account, in particular, the principle of common but differentiated responsibilities. The international efforts to fight against climate change should be led by the most industrialized countries, including the Parties with economies in transition, as listed in Annex I to the UNFCCC (Annex I Parties). The two main obligations listed in article 4(1) for all Parties to the Framework Convention are the following: (i) develop, periodically update, publish and make available to the Conference of the Parties, in accordance with article 12, national inventories of anthropogenic emissions by sources and removals by sinks of relevant GHG, using comparable methodologies to be agreed upon by the Conference of the Parties; (ii) formulate, implement, publish and regularly update national and, where appropriate, regional programs to mitigate climate change and facilitate adaptation to climate change.[12]

Moreover, article 4(2) contains more specific mitigation commitments placed upon Annex I Parties related to the development of national policies and measures. In particular, each one of such Parties "shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs".[13]

In addition to that, article 4(3) states that the most industrialized countries should provide new and additional financial resources in order to enable developing countries to meet the full costs deriving from the implementation of the Framework Convention and in particular those foreseen by article 12, which requires all Parties to set up a national inventory of anthropogenic emissions by sources and removals by sinks of all GHGs and provide to the Conference of the Parties periodical communications related to the achievement of the objective of the Framework Convention. This specific obligation to provide new and additional financial resources is in fact posed solely on countries listed in Annex II to the UNFCCC, which substantially resemble those listed in Annex I with the exclusion of the Parties with economies in transition.

Moreover, Annex II Parties have the obligation to provide financial resources in order to promote the transfer of technology needed by developing countries to meet their commitments under the Framework Convention. To this effect, they also have

[12] See UNFCCC, article 4(1)(a) on inventories and 4(1)(b) on national programmes.

[13] It should be noted that such a commitment is mandatory on all Annex I Parties, including the European Community, which is at present the only non-state Party to the UNFCCC.

the duty to support the financial mechanism foreseen by article 11 of the UNFCCC, which is provisionally represented by the Global Environmental Facility (GEF).[14]

The articles from 7 to 10 of the Framework Convention contain a series of provisions on the institutional setting created by the UNFCCC which includes the Conference of the Parties (COP), which is the supreme body for its implementation, the Secretariat, which is the main administrative institution, and two subsidiary bodies for scientific and technical assistance, namely the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI).

The Conference of the Parties has the duty to monitor the correct implementation of the UNFCCC and all related legal instruments. It meets annually in ordinary sessions in the framework of which it makes all the decisions necessary to promote the effective implementation of the Framework Convention.

The main duty of the Secretariat is to administer and coordinate all the activities foreseen by the UNFCCC. To this effect, it organizes periodical sessions of the COP and the Subsidiaries Bodies, it gathers and distributes all the information and communications on the implementation of the Framework Convention issued by the Parties and promotes the coordination of its functions with the activities of the secretariats of other multilateral conventions and international organizations.

The Subsidiary Body for Scientific and Technological Advice is in charge to provide the COP and, as appropriate, its subsidiary bodies with timely information and advice on scientific and technological matters relating to the Framework Convention. It has an interdisciplinary membership and includes representatives of the Parties.

The Subsidiary Body for Implementation assists the Conference of the Parties in the assessment and review of the effective implementation of the Framework Convention. It is made of representatives of the Parties, which are experts on climate change issues.

1.3 The Kyoto Protocol on Climate Change

The UNFCCC, which pursues the general objective of the stabilisation of GHGs concentrations in the atmosphere over the long term and contains the basic principles and rules upon which the climate change legal regime is based, was meant to represent the starting point for future more stringent actions, to be contained in subsequent legal instruments.

[14] The Parties to the Convention assigned the operation of the financial mechanism to the Global Environment Facility (GEF) on an on-going basis, subject to review every four years. The financial mechanism is accountable to the Conference of the Parties (COP), which decides on its climate change policies, programme priorities and eligibility criteria for funding, based on advice from the Subsidiary Body of Implementation (SBI). The Kyoto Protocol also recognizes, under its Article 11, the need for the financial mechanism to fund activities by developing country Parties. In addition to providing guidance to the GEF, Parties have established three special funds: the Special Climate Change Fund (SCCF) and Least Developed Countries Fund (LDCF), under the Convention; and the Adaptation Fund (AF), under the Kyoto Protocol (source: www.unfccc.int).

In fact, shortly after the entry into force of the UNFCCC, negotiations started for drafting a protocol with more precise GHGs reduction commitments for the most industrialised countries, namely those already listed in Annex I to the Framework Convention. The main assumption for the elaboration of such a new international legal instrument laid in the fact that the developed Parties' aim of returning their GHG emissions to the 1990 levels, as written in very broad terms in article 4(2) of the Convention, was not sufficient to pursue the ultimate objective stated in article 2 calling for the "stabilization of greenhouse gas concentrations in the atmosphere at a level which would prevent dangerous anthropogenic interference with the climate system".

In order to respond to the need of pursuing a more effective climate change policy, the first Conference of the Parties to the Framework Convention (COP-1), which took place in Berlin in 1995, launched a negotiating process aiming at the elaboration of a new legal instrument, to be developed in the form of a protocol to be annexed to the Convention, which should make effective and fully legally binding for the Annex I Parties the "loose" obligation already contained in the UNFCCC to return their GHG emissions to the 1990 levels.

The activities under such a negotiating process, known as the "Berlin Mandate", were to be performed by an ad hoc negotiating group, the so-called "*Ad hoc* Group on the Berlin Mandate" (AGBM). Two years after the beginning of the negotiations, the AGBM presented to the COP-3, which took place in Kyoto in 1997, a Draft Protocol with the aim of contributing to the concrete achievement of the ultimate objective stated in the Framework Convention, in particular through the establishment of reinforced commitments for the most industrialized countries (Annex I Parties). With specific regard to the developing countries, the "Berlin Mandate" had in fact already explicitly determined that, on the basis of the principle of common but differentiated responsibilities, they should neither be subject to binding GHG reduction commitments, nor to other procedural obligations in addition to those already foreseen by the UNFCCC, relating for instance to measurement, inventories and communication. During COP-3, following a few days of intense negotiations, the Kyoto Protocol was finally agreed by the UNFCCC Parties and immediately opened to signature.

The Kyoto Protocol foresees for the first time binding reduction commitments of GHG emissions for the most industrialized Parties (Annex I Parties) and represents the first concrete step for the achievement of the ultimate objective envisaged by the Framework Convention, namely the stabilization of GHG emissions in the atmosphere at a level which would prevent dangerous anthropogenic interference with the climate system in accordance with the provisions of article 4(2)(a) and 4(2)(b) of the UNFCCC and in application of the "Berlin Mandate". As to the developing Parties, namely the Non-Annex I Parties, the Kyoto Protocol confirms their full participation to the international efforts to fight against climate change, but in application of the "Berlin Mandate" does not foresee any specific binding reduction commitment for such Parties.

The reduction commitments established by the Kyoto Protocol for the Annex I Parties are expressed in a reduction percentage as compared to the 1990 levels and are related to a specific deadline, the so-called first commitment period which ranges from 2008 to 2012. The Annex I Parties should reach an overall reduction

of 5.2% of their emissions as compared to the 1990 levels. In order to do so, each Annex I Parties has a differentiated target as listed in Annex B to the Kyoto Protocol. Not all targets listed there, however, correspond to GHG reduction commitments. Actually, whereas most of the countries have (differentiated) reduction targets, such as the European Community and their (then) 15 Member States (−8%), the USA (−7%), Canada and Japan (−6%), a few countries have a stabilisation target to the 1990 levels (Russia and Ukraine) and a few others have a limited increase target (Australia +8%).[15]

With regard to the EC and its Member States, in particular, article 4(1) of the Kyoto Protocol foresees a peculiar mechanism which enables the economic integration organisation to reach an (internal) agreement with its Member States in order to redistribute the overall reduction target −8% among the 15 countries concerned through the determination of specific differentiated targets for each of them. This burden sharing mechanism has been named the "EC bubble". The internal agreement needed to make the mechanism work, the so-called "Burden Sharing Agreement", was concluded in 1998 among the environmental ministries of the then 15 Member States and subsequently notified to the Climate Change Secretariat.[16]

To this respect, it should be noted that, in general terms, the EC bubble mechanism seems to be a very interesting instrument to pursue a more equitable redistribution of the overall –8% reduction objective, by taking into account the different levels of development and the different capabilities of the 15 Member States. In fact, the "Burden Sharing Agreement" foresees mostly reduction targets, which range for instance from the –21% of Germany and Denmark to the –12.5% of the UK to the –6.5% of Italy, alongside stabilisation objective to the 1990 levels (France and Finland) to limited increase targets for the (then) less developed economies, such as Ireland (+13%), Spain (+15%), Greece (+25%), Portugal (+27%).

As it is well known, the refusal of the USA to ratify the Kyoto Protocol, despite their initial (political) willingness to do so, delayed for several years its entry into force. This was due to the disposal of article 25 of the protocol which conditioned its entry into force to the prior ratification of not less than 55 Parties to the Framework Convention, incorporating Parties included in Annex I which account for at least 55% of the total GHG 1990 emissions of Annex I Parties. Since the USA at the time when the Kyoto Protocol was signed represented the largest GHG emitter in the atmosphere, by contributing to more than 35% of the overall GHG emissions of the Annex I countries, the entry into force of the Kyoto Protocol was practically blocked unless all other major GHG emitters ratified it. In fact, the Kyoto Protocol could finally enter into force just in February 2005, after the Russian Federation ratification of November 2004, which occurred following the European Community

[15] See Annex B to the Kyoto Protocol.

[16] The EU Burden Sharing Agreement reached within the European Council of 16–17 June 1998 (EC Council Conclusions DOC 9702/98 of 19 June 1998) was then included in the EC Council Decision 2002/358 of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder (OJ L130 of 15 May 2002, p. 1).

strong "lobbying" activities. Presently, the Kyoto Protocol has been ratified by 180 parties and the initial gap between the broad UNFCCC membership and the more limited one of the Kyoto Protocol is now highly reduced.

The specific GHG reduction commitments for Annex I Parties listed in Annex B to the Kyoto Protocol do not exhaust all the obligations of the Parties under the protocol. In fact, in more general terms, article 10 reaffirms the existing commitments contained in article 4(1) of the Framework Convention and places upon all Parties to the Kyoto Protocol the duty to "continuing to advance the implementation of these commitments in order to achieve sustainable development". In practical terms, the most relevant provisions in this sense are contained in article 10(b)(i) of the Kyoto Protocol which places upon the Parties the duty to "formulate, implement, publish and regularly update national and, where appropriate, regional programs containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate change".

More specifically, article 2 to the Kyoto Protocol, defines some specific obligations for Annex I Parties related to the development of national "policies and measures" in accordance with their national circumstances, aiming at the achievement of the specific reduction targets listed in the Kyoto Protocol and more generally at promoting sustainable development.

The main focus in the first few years following the entry into force of the Kyoto Protocol has been, in fact, placed mainly on the national "policies and measures" to be developed and implemented in order to achieve the specific mitigation commitments agreed by the Annex I Parties. Moreover, in the process for the determination of such national policies and measures a great attention has been placed on the possible impacts of such measures on the traditional national policies in several key national sectors, such as energy, transport, industry, agriculture, forestry and waste management.

However, despite the efforts by the Annex I Parties to develop adequate national policies and measures, the evidence has soon demonstrated the correctness of one of the main assumptions made in the process of drafting the Kyoto Protocol: the fact that should the ambitious reduction targets listed in Annex B to the Kyoto Protocol to be achieved solely through actions performed at national level by the Parties, the costs necessary to achieve the agreed commitments would be too high and not economically sustainable for most industrialized countries. For this reason, in fact, the drafters of the Kyoto Protocol planned the establishment of the so-called flexibility mechanisms, conceived as economic instruments to be used by the Parties with binding reduction commitments in order to contribute to the achievement of their specific targets at a lower marginal cost.

1.4 The Flexibility Mechanisms of the Kyoto Protocol

The three flexibility mechanisms foreseen by the Kyoto Protocol are the Joint Implementation (JI), the Clean Development Mechanism (CDM) and the Emission Trading (ET). The flexibility mechanisms allow Annex I countries with binding

reduction objectives to partially meet their emission reduction commitments under the Kyoto Protocol, by promoting projects for the reduction of GHG emissions in other Annex I countries (JI) or in Non-Annex I countries (CDM) or by acquiring emission reduction units from other Annex I countries (ET).

Moreover, according to the Kyoto Protocol, Annex I countries may authorize legal entities, such as private companies and financial investors, to participate, under their responsibility, in actions leading to generation, transfer or acquisition of carbon credits in the framework of the three flexibility mechanisms. In such a case, however, while the authorising country remains fully responsible for the fulfilment of its obligations under the Protocol, it has to ensure supervision on the authorised entity's respect of the rules and modalities of the mechanisms. On the other side, the authorised legal entities are allowed to transfer and acquire credits only if the authorising party meets the participation requirements foreseen for the relevant flexibility mechanism.[17]

The Joint Implementation is foreseen by article 6 of the Kyoto Protocol and may be used by Annex I countries wishing to acquire emission reduction units (ERUs) by promoting, performing or sponsoring GHG reduction projects or GHG removals projects by sinks in other Annex I countries. The same countries may also acquire ERUs from project developers without being involved in the management and performance of the project. In addition to that, as mentioned above, each Annex I country may authorize legal entities, under its responsibility, to participate to JI projects.

The Clean Development Mechanism is an original creation of the COP 3 held in Kyoto at the time of the Protocol's signature. It is governed by article 12 of the Kyoto Protocol which, however, limits itself to define just the CDM general features without providing a comprehensive regulation. Such a mechanism resembles, in general terms, the JI mechanism described above. In fact, pursuant to the CDM, each Annex I party may promote, perform or sponsor GHG reduction projects or GHG removals projects by sinks in other countries in order to generate certified emission reduction units (CERs). In the case of CDM, however, those projects have to be developed in Non-Annex I countries, therefore aiming at a double objective: on the one side, contributing to meeting the emission reduction objective by Annex I countries and, on the other side, helping Non-Annex I countries in achieving sustainable development targets. In particular, in this sense, CDM projects should provide the hosting Non-Annex I countries with environmental, social and developmental benefits, linked for instance to the transfer of new and green technologies for the improvement of their energy efficiency and self-sufficiency.

According to article 12 of the Kyoto Protocol, also private and/or public entities may be involved in CDM projects, upon authorisation of a Party and under its

[17] See Decision 16/CP.7 Guidelines for the implementation of article 6 of the Kyoto Protocol, Decision 17/CP.7 Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto and Decision 18/CP.7 Modalities, rules and guidelines for emissions trading under Article 17 of the Kyoto Protocol; see also F. Yamin, J. Depledge, *The International Climate Change Regime*, cit., p. 148.

responsibility. Moreover, in this case, their participation is subject to whatever guidance may be provided by the CDM Executive Board. This differs from the case of the participation of legal entities under JI and seems to indicate that responsibility for the supervision of such entities is shared between the authorising Party and a centralized governing body, the CDM Executive Board.

CDM projects are structured in several major phases, which compose the so-called CDM project cycle,[18] involving the CDM Executive Board as well as a considerable number of public (DNAs) and private (PPs and DOEs) entities, each one with very specific duties and responsibilities.

CDM projects normally involve a quite complex management process and structure and raise various relevant issues. One of the trickiest is related to the definition of parameters to estimate the emission reduction units achieved by the proposed CDM project. The solution to such a problem depends on the estimation of the emission reduction achieved through the project as compared to a "business as usual" scenario. In such a context, obviously, the choice of the correct methodology for defining the baseline of the project and for monitoring the effective emission reduction is absolutely crucial. All the methodologies must be approved by the CDM Executive Board. New methodologies may be submitted by the DOE to the Executive Board for the approval prior to the submission of a project. In case a project is based on an already approved methodology, it must be validated by the DOE before its submission to the Executive Board for the approval.

The Emission Trading mechanism is foreseen by article 17 of the Kyoto Protocol and was inserted in the text of the protocol at a late stage of the COP-3 negotiations. Such a mechanism differs from the two previous ones, insofar as it is not based on "projects" of emission reduction, but it is rather an economic instrument based on trading of GHG reduction units (ERUs, CERs or AAUs[19]) by Annex I parties. The rationale of the mechanism is to help parties which are not able to meet their emission reduction targets, neither through national policies and measurers, nor through JI and CDM projects, to satisfy their commitments by acquiring GHG reduction units on the market. Also, with regard to Emission Trading, Annex I Parties may authorise legal entities to participate to the trading activities under their responsibility and supervision.

The Kyoto Protocol does not contain more specific provisions on the regulation of the ET mechanism. The functioning rules have been then elaborated by the COPs of the UNFCCC up to the entry into force of the protocol and then approved by the first Conference of the Parties serving as Meeting of the Parties (COP/MOP-1 or CMP-1) of the Kyoto Protocol held in Montreal in 2005.

In any case, article 17 of the Kyoto Protocol determines that any trading under the ET mechanism "shall be supplemental to domestic actions for the purpose of

[18] For further details, see R. Vlastelica Sutic, *The CDM Project Cycle*, *infra* in this volume, and F. Yamin, J. Depledge, *The International Climate Change Regime*, cit., pp 160–163.

[19] The Assigned Amount Units (AAUs) for each Party correspond to the level of its assigned amount established pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol.

meeting quantified emission limitation and reduction commitments". Such a condition, which has been named "supplementary", is explicitly foreseen by the protocol for JI and ET, but it is implicitly applied also to CDM projects. It does not refer to a specific minimum level of GHG reduction which must be achieved through domestic action and therefore is to be understood simply as a "soft law obligation" to guide the Parties in the implementation of the protocol, despite some early attempts of some countries, led by the European Community, to define a quantitative limit in this sense. Under such a "soft law obligation", in practice, the Parties should just demonstrate to try and give priority to domestic actions and to limit, as far as possible, the recourse to the flexibility mechanisms.

1.5 The Compliance Regime of the Kyoto Protocol

In order to guarantee the effective and full functioning of the Kyoto Protocol legal regime, article 18 provides for the possibility to develop an *ad-hoc* compliance regime to deal with the controversies which may arise from its concrete application.

The Compliance Regime of the Kyoto Protocol, which was initially agreed at COP-7 (2001) in the framework of the so-called "Marrakech Accords" and then finally approved by COPMOP-1 in Montreal (2005), started to operate in 2006.[20]

The Compliance Regime is structured upon a plenary and two branches with different competences and responsibilities, the Facilitative Branch and the Enforcement Branch.[21] The Facilitative Branch, pursuant to article IV of the "Procedures and Mechanisms relating to compliance under the Kyoto Protocol" (hereinafter simply the "KP Procedures") is responsible for addressing the questions of implementation with the Kyoto Protocol. In particular, it should do so by providing advice and facilitation to the Parties in implementing the protocol and promoting compliance by the Parties with their commitments under the Kyoto Protocol, taking into account the principle of common but differentiated responsibilities.

The soft and facilitative approach envisaged by the drafters of the compliance regime for the Facilitative Branch, which results from article IV of the KP Procedures, is also confirmed by the analysis of the types of consequences it may apply pursuant to article XIV of the KP Procedures. Such consequences, in fact, range from the advice and facilitation of assistance to the Parties on the implementation of the Kyoto Protocol provisions, to the facilitation of financial and technical assistance to any of the Parties concerned and to the formulation of recommendations to any Party

[20] See COP7 Decision 24/CP.7 (2001) Procedures and mechanisms relating to compliance under the Kyoto Protocol and COPMOP-1 Decision 27/CMP.1 (2005) Procedures and mechanisms relating to compliance under the Kyoto Protocol.

[21] For a more detailed analysis of the Compliance Regime of the Kyoto Protocol and the major legal issues related to its implementation and application see M. Montini (2007) *The compliance regime of the Kyoto Protocol*. In: W. Th. Douma, L. Massai, M. Montini (eds) The Kyoto Protocol and beyond. TMC Asser Press, p 95 ff.

concerned regarding the promotion of the provision of financial and technical assistance to the other Parties within the scope of the UNFCCC. Needless to say, the analysis of the scope and reach of such measures envisaged by the compliance regime for the Facilitative Branch makes it possible to determine that such provisions do not intend to create a system of binding consequences for the non-complying Parties.

The situation seems to be (at least partially) different once the analysis shifts to the activities performed by the Enforcement Branch. In this sense, article V of the KP Procedures states that this Branch is responsible for three main duties: (i) determining whether a Party included in Annex I is not in compliance with its quantified emission limitation or reduction commitments; (ii) assessing whether the methodological and reporting requirements are respected and (iii) checking whether the eligibility requirements for all the three flexibility mechanisms foreseen by the KP are fulfilled. All of the three mentioned situations specifically relate to the behaviour of Annex I Parties and somehow refer to the (non) fulfilment of their commitments under the protocol.

As to the consequences for non-compliance which may be applied by the Enforcement Branch, pursuant to article XV of the KP Procedures, these may include a declaration of non-compliance and the possibility to request the Party not in compliance to develop a plan containing the analysis of the specific causes for non-compliance, the indication of the measures the Party should take to try and reinstate compliance and the provision of a timetable for the implementation of such proposed measures.

In addition to that, however, article XV of the KP Procedures also foresees some more specific measures which may be addressed to non complying Parties under certain conditions. In particular, to this respect, one may recall that, on the one side, when the Enforcement Branch determines that a Party does not fulfil one or more of the eligibility requirements foreseen for the functioning of the flexibility mechanism under articles 6, 12 and 17 of the Kyoto Protocol, it may suspend the eligibility of that Party for the use of those mechanisms. Moreover, on the other side, when the Enforcement Branch determines that a Party has exceeded its assigned amount as listed in Annex B of the Kyoto Protocol it may issue a declaration of non-compliance accompanied by three more specific and more harsh consequences, namely: (i) the "deduction from the Party's assigned amount for the second commitment period of a number of tonnes equal to 1.3 times the amount in tonnes of excess emissions", (ii) the "development of a compliance plan" on more detailed and specific terms of the one already mentioned above with regard to the consequences which may be applied by the Enforcement Branch, and (iii) the "suspension of the eligibility to make transfers under 17 of the Kyoto Protocol", namely under the international emissions trading.

In the context of the present contribution, there is no possibility to provide a detailed analysis of the several problematic issues raised by the Compliance Regime of the Kyoto Protocol. However, there are at least a couple of noteworthy specific features which should be recalled here.[22]

[22] On this issues, see *amplius* M. Montini, cit., p. 105.

The first one relates to the nature of the "measures" which may be applied by the Enforcement Branch against a Party not in compliance with its obligations, which seem sometimes to represent real "sanctions", rather than resembling the traditional "facilitative measures". In fact, they may be said to have a much more "compulsory" nature, if compared with the measures normally foreseen by other compliance regimes developed under various Multilateral Environmental Agreements, such as for instance the ones developed with regard to the Montreal Protocol on the protection of the ozone layer, upon which also the compliance regime of the Kyoto Protocol is largely premised.

The second issue which is worth recalling here refers to the "automatic application" of the consequences for non-compliance. To this respect, it must be noted that, according to the compliance regime of the Kyoto Protocol, neither the triggering of the compliance procedure, nor the issuance of the related consequences by the Facilitative Branch or the Enforcement Branch are dependent from the consent of the Party in non-compliance. This means, in other words, that no Party may escape an investigation and a consequent decision by the Compliance Committee over its enforcement record with regard to the obligations stemming from the Kyoto Protocol provisions. The "automatic application" of the consequences for non-compliance represents a peculiarity of a few compliance regimes recently developed under the existing MEAs, and in particular of the present compliance regime, which largely departs in this respect from the traditional dispute settlement procedures.

This is to be welcomed for at least a couple of reasons: firstly, since it represents an important progress in the management of the compliance procedures, possibly making them much more efficient, and secondly since it may contribute to a greater use of the "consequences" foreseen by the compliance regime of the Kyoto Protocol, which also include some real "sanctions" with a potentially high "deterring effect" on the Parties as compared to the traditional "facilitative measures" normally applied so far under most compliance regimes.

1.6 The Implementation of the Kyoto Protocol and the Post-2012 Scenario

Immediately after the adoption of the Kyoto Protocol, which took place at COP-3 and awaiting the completion of the ratification process for its entry into force, the UNFCCC Parties started developing the rules and procedures to make to Kyoto Protocol fully operational and paved the way for the full functioning of the flexibility mechanisms.

In this sense, at COP-4, held in Buenos Aires in 1998, the Parties reached a framework agreement on the outstanding issues, the so-called "Buenos Aires Action Plan", in particular relating to the functioning rules and procedures for the flexibility mechanisms. Such an Action Plan, after 2 years of intense negotiations, led to the conclusion of the "Marrakech Accords" at the resumed session of COP-7 held in Marrakech in November 2001. The Marrakech Accords include 39 decisions

which contain the guidelines, the rules and the operational procedures for the full functioning of the Kyoto Protocol and its mechanisms. Technically speaking, COP-7 adopted all this series of decisions on a provisional basis, since their official adoption was one of the tasks assigned to the first conference of the parties to the Kyoto Protocol (COP/MOP-1) to be held after its entry into force. In brief, the most relevant outcomes of the Marrakech Accords may be summarized as follows: (1) adoption of the compliance regime for the Kyoto Protocol; (2) definition of the eligibility criteria of the flexibility mechanisms; (3) establishment of a common monitoring system for GHG emissions; (4) adoption of a reference document for the initiative to be performed in less developed countries.

Following the entry into force of the protocol, at the end of 2005, the first Conference of the Parties to the Kyoto Protocol (COP/MOP-1) was finally held in Montreal, in parallel with COP-11. Since that moment, given the fact that not all the Parties to the UNFCCC have ratified the protocol, the respective conferences of the Parties (COP and COP/MOP) are held in the same place and in the same period but are formally two separate ones.[23]

In the framework of COP/MOP-1, in particular, the Parties to the Kyoto Protocol adopted a package of decisions which make it fully operational, by incorporating the "Marrakech Accords", whilst most notably both COP/MOP-1 and COP-11, in the framework of their respective competences and responsibilities, opened the discussion for the definition of the post-2012 scenario.

With regard to the definition of the post-2012 regime, COP/MOP-1 established an *Ad Hoc* Working Group on further commitments for Annex I countries under the Kyoto Protocol (AWG-KP) and instituted two parallel negotiating tracks for the revision of the Kyoto Protocol: on the one side, a process under article 3(9) of the Kyoto Protocol, focused on the definition of a second commitment period, which may foresee further reduction commitments for the same Annex I Parties which already have reduction obligations for the period 2008–2012; on the other side, a process under article 9 of the Kyoto Protocol, which aimed at investigating the possibility to revise the Kyoto Protocol, possibly introducing some different obligations for the Parties which presently do not have binding reduction commitments listed in Annex B of the Kyoto Protocol.

On the other side, COP-11 launched a parallel negotiating process aimed at the creation of a dialogue among the UNFCCC Parties on experiences and strategic responses for a long term action to fight climate change, the so-called "Dialogue" process. Such a Dialogue was not directly finalised to the definition of any specific obligation for the UNFCCC Parties and did not imply the opening of formal negotiations. However, it represented a very important step on the way towards the definition of the post-2012 scenario, insofar as it fully incorporated the USA which, not being a

[23] At the time of COP/MOP-1 the most notable UNFCCC Parties which had not ratified the Protocol were the USA and Australia. Subsequently Australia ratified the Protocol in 2007 and now the United States is the only party with binding reduction commitments written in Annex B which has not ratified the Protocol yet.

party, were not formally involved in the above mentioned negotiations for the revision of the Kyoto Protocol.

Despite the ambitious targets of the threefold negotiating processes launched in Montreal in 2005 and the activities performed within the AWG-KP, at the following conference of the Parties, COP/MOP-2 and the parallel COP-12, no specific significant steps towards the definition of a post-2012 climate change regime were made. This was due, in particular, to the persistent different views between the European Community, the USA and the major economies among the Non-Annex I countries, such as China, India and Brazil.

The negotiating process for the post-2012 scenario was then refined and relaunched at the COP/MOP-3 which took place in Bali in December 2007, together with COP-13. There, the Parties adopted a road map for a long term action to fight climate change, namely the so-called "Bali Action Plan". In addition to that, the Parties, in order to speed up the negotiation process already started in Montreal 2 years earlier, established a new *Ad Hoc* Working Group on Long-term Cooperative Action under the Convention (AWG-LCA). Such a working group is open to the participation of the USA and the major emerging economies alongside with the Parties already bound by specific reduction targets for the first commitment period and should complete its activity by the end of 2009, in time for the COP-15 and COP/MOP-5 meetings, to be held in Copenhagen in December 2009, which should define the scenario for the post-2012 regime.

Meanwhile, the Parties gathered in Poznan in December 2008 for COP-14 and COP/MOP-4. The Parties recalled there their intention to proceed towards the definition of the post-2012 scenario in time for its adoption at the Copenhagen meetings and, in this sense, agreed to work on the definition of possible commitments for emission reduction objectives, both for mid-term and long term, for the most industrialised countries. Moreover, they also agreed to reinforce their action aimed at raising large scale funds to support developing countries in meeting their mitigation and adaptation needs. Following the Poznan talks, the main issues to be addressed in the on-going negotiations relate in particular to the definition of a long term shared vision for cooperation to fight climate change, to the coordination between the adaptation and mitigation challenges, to the necessity to create an efficient "self-supporting system" to meet the financial needs of the parties and to the definition of a better response to the emerging "governance challenge" for the whole climate change regime.

1.7 The European Policy on Climate Change

The European Community, together with its Member States, is one of the founding partners of the climate change regime. The EC has ratified the UNFCCC in 1993 and the Kyoto Protocol in 2002. During the nineties, the EC has started developing a European climate change policy, which is based on several initiatives and concrete actions in the environmental and energy sectors. Such a policy has been partially

designed to meet the specific commitments stemming from the international agreements on climate change and partially developed independently from those, with the view to promoting a leading role for the EC within the international climate change context. In particular, the first European climate change programme was adopted in 2000.[24] It aimed at identifying the correct European strategy for meeting the international commitments and at developing a genuine European approach to climate change. In this sense, the EC action was focused mainly in the following sectors: (1) flexibility mechanisms; (2) energy production and consumption; (3) transport; (4) industry; (5) scientific and technological research.

Since 2003, the European Community has started to adopt specific legislative instruments to reduce GHG emissions and concretely contribute to the international effort to fight climate change. In particular, Directive 2003/87/EC has introduced the European system for emission trading (European emission trading scheme-EU ETS) which prescribes, starting from 1 January 2005, that all industrial installations, which fall into the four categories listed in Annex I of the Directive (energy activities, production and processing of ferrous metals, mineral industry, industrial plants for the production of pulp and paper), must be authorised for the emission of GHGs in the atmosphere by the competent national authority in charge of the application of the Directive in each Member State, must monitor their emissions according to the regulations enacted by the EC Commission and the competent national authority and must respect the specific target determined by the national allocation plan adopted by each Member State.[25]

In particular, the Directive foresees two different commitment periods: the first one (the so-called "pre Kyoto phase") from 2005 to 2007 and the second one (the so-called "Kyoto phase") from 2008 to 2012. For each of these two periods, every Member State has the duty to define and implement a specific national allocation plan, which determines the emission targets for each industrial installation located within its national territory which falls within the four categories listed by the Directive. The first phase has been conceived by the drafters of the Directive as a trial phase in which the European institutions, the Member States and the industrial installations involved could start dealing with emission trading before the official start of the first commitment period foreseen by the Kyoto Protocol in application of the learning by doing principle. This approach has in fact proven a correct one, insofar the practice gained in the first phase has highlighted some difficulties, for instance related to the correct definition of the targets allocated to the single installations and to the national process for the definition of the national allocation plan which have been then addressed and solved by the European Commission in the second phase.

---

[24] Communication of the Commission on EU Policies and Measures to Reduce Greenhouse Gases and Emissions, COM(2000)88 final of 8 March 2000.

[25] Directive 2003/87/EC of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, in OJ L275 of 25 October 2005, p. 32.

Recently, the EU-ETS Directive has been modified by Directive 2008/101/EC and will be applicable to the aviation sector starting from 1 January 2012.[26] More recently, the EU ETS Directive has been amended by the Directive 2009/29/EC of the 23 April 2009, providing some major changes to the current system to be applied from 2013 onwards. Among those, the most notable feature is the progressive transformation of the allocation system for the industrial installations covered by the Directive from a free of charge allocation based on historical emissions to an auctioning system.[27]

In order to complete the system created by the Directive 2003/87/EC, the EC has also approved the Directive 2004/101/EC which aims at enabling industrial installations which are subject to individual target pursuant to the EU-ETS scheme to acquire some GHG emission units through JI and CDM projects. In addition to that, one side objective of Directive 2004/101/EC is the promotion of the transfer of new and green technology from European countries to Non-Annex I countries, thus contributing to the concrete promotion of sustainable development objectives in the host countries.

Moreover, in 2005, the European Commission launched the second climate change programme, drafted on the basis of the experience gained during the first one, with the aim of making more effective and successful the European action in this field.[28]

In addition to that, in the framework of the redefinition of the EU mix of instruments to fight climate change, there is at European level an ongoing debate about the possibility to introduce a tax on CO_2 emission in the atmosphere, which could prove a decisive step towards the promotion of a greener energy and electricity market in Europe, with an increased role for renewable energy sources.[29]

Since 2007, the European Commission has started working on the definition of the post-2012 regime.[30] In particular, in January 2008, in the framework of the so-called "energy package", the European Commission has officially launched the proposal for a new EC plan to fight the climate change, which has been named "20-20 by 2020".[31]

---

[26] Directive 2008/101/EC of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community, in OJ L8 of 13 January 2009, p. 3.

[27] Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, OJ L140 of 5 June 2009, p. 63.

[28] Communication of the Commission, Winning the Battle Against Global Climate Change, COM(2005)35 final of 9 February 2005.

[29] On the issue see L. Kraemer (2006) *Some reflections on the EU mix of instruments on climate change*. In: M. Peeters, K. Deketelaere (eds) EU Climate Change Policy-The Challenge of New Regulatory Initiatives. Edward Elgar.

[30] Communication of the Commission, Limiting Global Climate Change to 2° The way ahead for 2020 and beyond, COM(2007)2 final of 10 January 2007.

[31] Communication of the Commission, 20 20 by 2020 Europe's climate change opportunity, COM(2008)30 of 23 January 2008.

The new EC package, finally approved in April and published in June 2009, consists of a series of Directives and Decisions, aiming at promoting an integrating set of goals. Pursuant to it, three main objectives are fixed for the EC action up to 2020: the reduction by 20% as compared to 2005 levels of the GHG emissions for the sectors not covered by the EU-ETS Directive,[32] the increase up to 20% of the share of energy produced by renewable energy sources,[33] the increase of energy efficiency accordingly. Those objectives, coupled with the provisions on the introduction of a carbon dioxide capture and storage system,[34] represent the basis for the EC negotiations on the post-2012 regime at international level. In any case, they constitute the minimum binding legal regime for all the 27 Member States and all the European private and public entities up to 2020, irrespective of the final outcome of the international negotiations on the future climate change regime.

Besides and more specifically, in January 2009, the European Commission presented a Communication containing the EU proposals for the ongoing climate change negotiations aimed at reaching a new general agreement on climate change at the next 2009 Copenhagen meetings. The EC document contains some proposals in particular related to three main challenges: targets and actions, financing and building an effective global carbon market. This should contribute to the definition of a long-term international institutional framework that can effectively tackle climate change in the next decades, guided by the available scientific knowledge.[35]

1.8 The Italian Policy on Climate Change

As far as the participation of the Republic of Italy to the climate change regime is concerned, Italy ratified the UNFCCC by means of Law 65/1994.[36] Subsequently, Italy implemented article 4 and 12 of the UNFCCC by submitting its First National Communication in January 1995.[37]

---

[32] Decision No. 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, OJ L140 of 5 June 2009, p. 136.

[33] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L140 of 5 June 2009, p. 16.

[34] Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L140 of 5 June 2009, p. 114.

[35] Communication of the Commission, Towards a comprehensive climate change agreement in Copenhagen, COM (2009)39 final of 28 January 2009.

[36] Law No. 65 of 15 January 1994, GURI No. 23 of 29 January 1994, Ordinary Supplement No. 16.

[37] All National Communications submitted by Italy are available at www.unfccc.int

However, the first two comprehensive planning documents on the development of a national climate policy are represented, respectively, by the CIPE Deliberation 211 of 3 December 1997,[38] which contains the Second National Communication to the UNFCCC and by the following CIPE Deliberation 137 of 19 November 1998,[39] which contains the Guidelines on the national policies and measures for GHG reduction.

The 1998 Guidelines provide the first reference scenario for the elaboration of the national plans and programmes needed to meet the emission reduction commitment of −6.5% which has been assigned to Italy pursuant to Annex B to the Kyoto Protocol, as integrated by the EC Burden Sharing Agreement. To this effect, the Guidelines identify the following six priority actions to be pursued at national level: (1) increase in the thermoelectric power efficiency; (2) reduction of the energy consumption; (3) production of energy from renewable energy sources; (4) reduction of energy consumption in the industrial residential and tertiary sector; (5) reduction of emissions in non energy sectors; (6) removal of GHG emissions by sinks.

Subsequently, Italy ratified the Kyoto Protocol by means of Law 120/2002,[40] officially committing itself to GHG reduction to be achieved in the first commitment period (2008–2012) with respect to 1990 levels. On the basis of Law 120/2002, CIPE approved the national plan for GHG reduction (2003–2010), the so-called PNR by means of Deliberation 123 of 19 December 2002. The main objectives of the PNR are the reduction of GHG emissions in the energy and transport sectors through the increase of the efficiency of the Italian economy and the promotion of green investments through JI and CDM projects, mainly carried out by Italian companies.

Moreover, Italy has enacted the national plans foreseen by Directive 2003/87/EC on the EU-ETS scheme. Such plans are aimed at imposing individual emission targets to the main industrial and energy installations falling under the four categories listed in Annex I of the Directive through the implementation of a so-called tradable permits scheme. In particular, the approval of the first national allocation plan (PNA I) for the period 2005–2007 was delayed following a long negotiation between the Ministry for the Environment, Land and Sea and the Ministry of Economic Development. The plan, initially submitted to the European Commission on 21 July 2004 and approved on 25 May 2005,[41] was finally issued by the Italian Ministry for the Environment, Land and Sea in February 2006.[42]

The allocations made by the Italian Ministry for the environment through the PNA I are based on the following three criteria: (1) the Italian economy is characterized by a high standard of energy efficiency, which makes the marginal cost for reducing

[38] CIPE Deliberation No. 211 of 3 December 1997 in GURI No. 18 of 23 January 1998.

[39] CIPE Deliberation No. 137 of 19 November 1998 in GURI No. 33 of 10 February 1999.

[40] Law No. 120 of 1 June 2002, GURI No. 142 of 19 June 2002, Ordinary Supplement. It is to be underlined that the Italian ratification of the Kyoto Protocol was simultaneous to those of the European Community and of all other EC Member States.

[41] EC Commission Decision of 25 May 2005.

[42] Decision of the Italian Ministry for the Environment, Land and Sea of 23 February 2006 (PNA I).

GHG emission higher with respect to other European countries; (2) the national capacity for the removal of GHG emissions by sinks must be increased through reforestation projects and a better management of the national forestry sector; (3) the use of JI and CDM flexibility mechanisms should be promoted and increased.

Immediately after the adoption of the PNA I, the preparation of PNA II, covering the period 2008–2012, was started. Also the PNA II followed a lengthy process of negotiations between the competent Ministries and was notified to the European Commission for its approval in December 2006. The PNA II was approved by the European Commission with binding remarks and requests for amendment in May 2007[43] and finally issued by the Italian Ministry for the Environment, Land and Sea in February 2008.[44]

More recently, CIPE Deliberation 123/2002, which had approved the PNR for the period 2003–2010, has been modified by CIPE Deliberation 135 of 11 December 2007,[45] which has called for a revision and updating programme of the Italian national plan for GHG reductions. On the basis of the new CIPE Deliberation, the national competent institutions are asked to identify the necessary additional policies and measures in particular in the transport, agriculture and eco-efficiency sectors to help the Country in meeting the Kyoto Protocol reduction commitments. At the same time, the said institutions should indicate the financial resources to be used to perform such additional policies and measures. In any case, it is explicitly stated that no further GHG reduction obligations may be posed on those sectors which are falling within the field of application of the EU-ETS Directive.

Finally, it should be underlined that in the last few years, the Italian climate policy has been refined and updated and it seems to be now better placed to reach some measurable objectives through the implementation of the planned national policies and measures. In any case, it is now clear that a relevant quota of the required GHG reductions should be obtained by enlarging the recourse to the flexibility mechanisms and, in this sense, Italy has recently increased its investments and international efforts for the development of JI and CDM projects and for the purchase of GHG reduction units.

1.9 Final Remarks and Expectations for the Post-2012 Negotiations

At the moment of writing, preparation talks on the way towards the COP-15 ad COP/MOP-5 meetings to be held in Copenhagen in December 2009 are still under way and it is difficult to predict whether a successful and meaningful agreement will be reached there.

---

[43] EC Commission Decision of 15 May 2007.

[44] Decision of the Italian Ministry for the Environment, Land and Sea of 29 February 2008 (PNA II).

[45] CIPE Deliberation No. 135 of 11 December 2007 in GURI No. 301 of 29 December 2007.

In any case, it appears now quite clear that in the over 15 years elapsed since the signature of the UNFCCC, which started shaping the climate change legal regime, we have experienced a rapid increase in the quantity and quality of the legal acts regulating the matter, with respect to the obligations posed upon States as well as with reference to the participation of non-State legal actors to the system. The latter category includes a variety of subjects, with very different needs and goals regarding their participation to the climate change legal system. For instance, on the one side there are the NGOs, which try to give their contribution to the regulation of the matter by participating with various modalities to the negotiations and, on the other side, there is a broad series of actors interested in taking part, to a more limited extent, to the mechanisms created by the system, for instance by participating to CDM projects activities in Non-Annex I Parties or by acquiring emissions credits on the market through the International Emissions Trading scheme foreseen by the Kyoto Protocol or through other regional and national trading regimes.

The Bali Action Plan has set the framework for the negotiations aimed at providing the necessary regulation for the climate change regime for the post-2012 period. In the present context, there is no point in trying to summarise all the positions expressed in recent times by the Parties to the UNFCCC and the Kyoto Protocol, as well as by the other relevant stakeholders, with regard to the objectives to be determined and the obligations to be assumed by the Parties to this end. However, it may be worth mentioning some few keywords which should guide the negotiations before and during the Copenhagen meetings and later may represent the reference concepts for the implementation of the agreement to be reached on the future climate change regime.

The most relevant keywords to this effect are: a long-term vision; the definition of short-and medium-term targets for mitigation and adaptation in developed and developing countries, to be set taking into account in a co-ordinated way the specific circumstances of each Party; the provision of economic-financial support to Parties to fulfil their commitments and obligations under the UNFCCC and the climate change regime; the promotion of technology transfer of clean/green technologies, especially towards developing countries, to enhance a cheaper and more effective control and reduction of GHG emissions; the development of better capacity-building actions on the requirements stemming from the UNFCCC and the Kyoto Protocol, in order to make all Parties to the climate change regime self-sufficient in the correct implementation of their obligations.

Such a framework for analysis should help us in identifying the desired outcomes for the post-2012 negotiations launched with the 2007 Bali Action Plan for the regulation of the future climate change regime. To this respect, among the whole array of possible options and foreseeable outcomes, a few highly relevant key issues should be correctly addressed in order to shape a meaningful future for the climate change legal regime. In my opinion, such essential key issues should include at least the following:

- The future climate change legal regime for the control and reduction of GHG emissions should become more flexible. This would enable, in fact, a more

active participation in the global effort to fight climate change also by those countries which presently do not have binding reduction commitments, such as the emerging Non-Annex I economies. Such countries, in fact, could, on the one side, continue not to have binding reduction commitments, but, on the other side, agree at least on some limitations of their increase of GHG emissions per GDP unit or per energy unit.

- A more suitable framework should be established for the enhancement of clean-green technology development, to be fostered *inter alia* by the promotion of public and private research. New technologies should be developed, tested and implemented both in developed countries with binding emission limitation commitments and in developing countries with looser obligations. In order to promote and enhance technology transfer, in particular towards developing countries, the CDM project scheme should be revised and updated.
- A global effort, involving both the parties to the climate change regime as well as the major international organisation should be developed in a co-ordinated way, so as to provide a wider and more effective financial-economic support, particularly to developing countries, to meet the challenges experienced in the implementation of the climate change regime and to sustain the related costs. This should include the provision of an adequate support for enhancing the capacity building of public officials, private operators and relevant stakeholders, starting with the most disadvantaged countries.
- A better regulation of the activities performed by public/private entities (non-State legal entities) and a better integration of their initiatives with the reduction efforts placed upon the Parties to the Kyoto Protocol should be promoted. This could also have the positive effect of reducing the regulatory as well as the financial risks which exit in a highly unregulated market, as it is presently the carbon market.

Chapter 2
An Assessment of CDM: Lessons Learned and the Way Forward

Francesca Romanin Jacur

2.1 Introduction

Annex I Parties to the Kyoto Protocol committed to reduce their greenhouse gases (GHG) emissions may use three economic tools designed to facilitate their task, the so called "flexibility mechanisms". These are the two project-based mechanisms, i.e. the Clean Development Mechanism (CDM) and the Joint Implementation (JI) and the market-based one, the Emission Trading (ET).[1]

They rely on the assumption that, since climate change is a global phenomenon, GHG emission reductions may take place wherever in the world for the benefit of the overall ecosystem. Accordingly, these mechanisms and in particular the project-based ones, provide rules and procedures to achieve emission reductions in countries where the costs of these reductions are comparatively lower.

The CDM is established by article 12 of the Kyoto Protocol, which sets its fundamental features and indicates its two main objectives: contribute to the sustainable development of the State hosting the projects and facilitate the achievement of compliance with quantified emission reduction commitments of Annex I States.

Decisions adopted by the Conferences of the Parties to the Kyoto Protocol (CMP or COP-MOP) have then provided specific rules and procedures for its concrete implementation. Another level of regulation addressing more technical and specific issues related to single projects is mandated to the Executive Board (EB) of the CDM.

This mechanism started functioning in 2000, when its parent treaty was not yet in force. This unusual situation of a system being provisionally implemented without having a "proper" legal basis highlights its exceptional and *sui generis* legal nature.

F. Romanin Jacur
Member of the Environmental Legal Team, University of Siena

[1] See M. Montini, *The Kyoto Protocol in the International Environmental Law context and the post-2012 Scenario*, para 4, *supra* in this volume.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_2,

The multilevel and evolving normative apparatus of the CDM is a unique model of regulation, which brings together international and national legal orders to achieve common environmental benefits.

This chapter, after briefly describing in the first part the main institutional and procedural aspects of the CDM, considers the practice developed in this decade of operation. Beside the positive outcomes, there are weaknesses in the system that need to be taken into account. The third part examines the various proposals for amendment of its regulatory scheme, currently being discussed within the international negotiations on the post-2012 climate change regime, that may be introduced in the future, in order to make the CDM more effective and enable the objectives it was designed for to be possibly met.

2.2 The CDM Regime: Underlying Principles, Institutional and Procedural Aspects

Article 12 of the Kyoto Protocol sets criteria that must be met to ensure an effective contribution of CDM projects to mitigation activities. In particular, emission reductions must be real, measurable, long-lasting and additional. Furthermore, the functioning of the system should be informed to the principles of transparency, efficiency and accountability. Moreover, an innovative feature is that private entities may also be involved in project activities when authorized by State Parties.

Emission reductions obtained through CDM projects are the final output of a complex process articulated in different phases were private parties and public authorities are involved. This process starts with the submission of a formal document describing the project[2] to the Designated National Authority (DNA) of the host State. This first document is subject to a first review aiming at verifying that the proposed CDM project effectively contributes to the sustainable development of the host country, in accordance with the sustainable development criteria set by the national authorities.

After obtaining the approval by the DNA and by the Annex I country DNA, the CDM project enters in its *strict sensu* implementation phase. The activity is carried out by the project proponents and is monitored by an independent third party, the Designated Operational Entity (DOE). DOEs are domestic or international companies, which should be accredited by the CMP.

Their mandate in the CDM process is twofold: they monitor the correct operation of the CDM activity and request to the EB its registration. In a following step of the process, another DOE will request the Board to issue the certificates (CERs) corresponding to the emission reductions obtained by the CDM project. In brief, while the DOEs work as independent verifiers in the general public interest, certifying that the CDM project is carried out respecting the PDD and that emissions have

[2] This document may be a Project Idea Note (PIN) or a Project Design Document (PDD).

effectively been cut, the EB checks that the Kyoto Protocol provisions and all related CMP decisions are complied with.

The EB is composed by ten members and by ten alternate members from Parties of the Kyoto Protocol. The membership reflects geographical representation and a balance between Annex I and non-Annex I Parties.[3] The members are elected by the CMP and serve in their personal capacity. They should possess appropriate technical and/or policy experience, but no specific provision is made to ensure that the EB as a whole covers all different areas of expertise that are necessary to accomplish effectively its mandate.[4]

The main functions of the EB are to report to the CMP on its ongoing activities and to make recommendations to the CMP to take appropriate action with regard to amendments to its rules of procedure, accreditation of DOEs and other measures needed for the effective functioning of the system.

In accomplishing its tasks, the EB is assisted by the Secretariat and by panels and working groups.[5] The Secretariat plays a fundamental role, being the depositary of all relevant information and documents and supporting the EB during and after its meetings. Moreover, it distributes information and makes sure that they are publicly available.[6]

The whole process takes place under the supervision of the CMP, which periodically considers the need to amend existing rules, provides recommendations and guidelines to the various parties involved.

As of today important achievements have been reached by the CDM. A clear sign of its success is given by the great number of projects approved. However, there are also loopholes that need to be solved and new challenges that need to be met.

2.3 The Evolution of the CDM

The CDM relies on a multifaceted legal basis including treaty provisions and decisions adopted by the CMP and by the EB. These decisions are in the first place the "Marrakech Accords"[7] and other decisions adopted by subsequent CMPs dealing

[3] Decision 3/CMP.1, Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol, UN Doc. FCCC/KP/CMP/2005/8/Add.1, 30 March 2006, Annex, para.7: "[…] one member from each of the five United Nations regional groups, two other members from the Parties included in Annex I, two other members from Parties not included in Annex I, and one representative of the small island developing States […]".

[4] *Ibidem* para.8(c).

[5] There are, for example, the Accreditation Panel, the Methodologies Panel, the Deforestation & Reforestation Working Group, the Small Scale Working Group and the Registration and Issuance Team.

[6] See M. Netto, K-U. Barani Schmidt (2005) *CDM project cycle and the role of the UNFCCC secretariat*. In: D. Freestone, C. Streck (eds) Legal aspects of implementing the Kyoto Protocol mechanisms: making Kyoto work. Oxford University Press, Oxford, p 175.

[7] Report of the Conference of the Parties at its seventh session, Decision 17/CP.7, FCCC/CP/2001/13/Add.2.

specifically with the CDM and envisaging the "further guidance" of the governing body to its subsidiary bodies.[8] Another important source of more specific rules for the functioning of the CDM are found in the acts adopted by the EB.[9]

Moreover, the whole process is steadily influenced by the practice developed by the parties involved in the process.

In fact, the CDM system has developed over the last 10 years following a "learning by doing" approach. This practice, although having its disadvantages because it surrounds the process with uncertainty and unpredictability, permits a flexible and reactive management and responses to emerging problems.

The EB and its supporting apparatus, the Secretariat and the technical Panels, have now gained a precious experience and knowledge in dealing with CDM projects and use this know-how to improve the functioning of the CDM.

Moreover, since the CDM was introduced by the Kyoto Protocol as a new mechanism, all participants involved started from the same point of departure: the "learning by doing" approach gave rise from the very beginning to a regular and constructive dialogue among the various stakeholders and the treaty organs. This cooperative relation is another important element of the successful and effective management of CDM projects.[10]

In our view, this "learning by doing" practice has been very positive, since it maintained the necessary flexibility in the process, thereby increasing its effectiveness.

Moreover, it has created an extended heritage of experiences and knowledge. However, this kind of approach is recently showing drawbacks and many critics, coming from parties involved but also from the institutional side, increasingly ask for a more structured and organized regulatory system. In this perspective, the CDM is moving towards a "codification" of the experience gained.[11]

The CDM being a *double face* mechanism that aims, on one side, at facilitating compliance of Annex I Parties in achieving their emission reduction targets and, on the other side, at contributing to the sustainable development of non-Annex I Parties, is exposed mainly to two kinds of critics.

Acting as "supporters" of the first objective, several States and the "business community", mainly composed by Annex I investors, have a particular interest in the effectiveness of the CDM and ask to streamline the approval procedures and

---

[8] See the Decisions entitled "Further guidance relating to the clean development mechanism" (Decision 7/CMP.1, Decision 1/CMP.2, Decision 2/CMP.3, Decision 2/CMP.4).

[9] The sessions of the EB and its reports are available on the Internet at http://cdm.unfccc.int/EB/index.html.

[10] See, for example, the interaction between DOE and Applicant Entities reported at the 44th meeting of the Executive Board, Report of the Executive Board of the Clean Development Mechanism, CDM-EB-44, 28 November 2008, p. 19.

[11] An important step in this direction has been the adoption by the EB of the Validation and Verification Manual, "an authoritative document that specifies the validation and verification requirements and expectations for the quality of the work conducted by DOEs and hence also provides valuable information to project participants." See Report of the Executive Board, note 11, para 14.

enhance their transparency. Another issue that has recently been raised by private investors relates to the lack of an appropriate internal review system to assess the legitimacy and fairness of the decisions of the EB or of its subsidiary organs.

Although a real opposition may not be envisaged because apparently opposite interests reflect common needs, the "environmental supporters" of the CDM, mainly representatives of developing countries, claim that its environmental integrity should be strengthened.

Environmental integrity is a broad concept entailing various dimensions.[12]

A first aspect relates to the unequal regional distribution of CDM in different geographic areas of the world. The CDM has been largely implemented in certain developing countries, while in others, generally the least developed ones, it had, if any, only a minor expansion. This issue has been long debated during current and previous negotiations, however, no satisfactory response has been found at present to ensure an equitable regional distribution of CDM projects.

The insufficient development of the CDM in certain countries is due to various reasons. Firstly, there are the difficulties investors face when implementing CDM projects in countries with an uncertain political situation, or characterized by a weak administrative structure. Furthermore, also the economic situation and the energy policy of the country are elements that have a great influence in making the sector interesting for a CDM investment. Other barriers relate to the capacity to finance the important investments needed to start a CDM activity.

In order to overcome at least some of these matters, the EB has adopted simplified procedures to facilitate access to the CDM, but these measures, as of today, have proven unable to foster an increased participation of least developed countries in the CDM.

Another criticism linked to the environmental integrity of the CDM relates to its capacity to effectively contribute to the sustainable development of the host country. It suffices here to mention the abundance of HFC-23 abatement projects, that, being large scale projects, create a great number of CERs while having less positive impacts in terms of sustainable development compared with other renewable energy CDM projects.[13]

As regards institutional matters, at present, the CDM process relies in great part on the activities carried out by the EB and its supporting bodies. These bodies have kept up with their responsibilities by enlarging their competences, but will soon come to a break-point.[14] In fact, the EB is still a part-time operating body, whose

---

[12] See E. Meijer, J. Werksman (2005) *Keeping it clean – safeguarding the environmental integrity of the clean development mechanism*. In: D. Freestone, C. Streck (eds) Legal aspects of implementing the Kyoto Protocol mechanisms: making Kyoto work. Oxford University Press, Oxford, p 191.

[13] For a detailed critical analysis, see M. Wara (2008) *Measuring the clean development mechanism's performance and potential*, 55 UCLA Law Review, p. 1759, spec. at p. 1779.

[14] The fourth CMP recognized "the rapidly expanding portfolio of clean development mechanism project activities and the increasing volume of work for the Executive Board of the clean development mechanism." (Decision 2/CMP.4, Further guidance relating to the clean development mechanism, Preamble, doc. FCCC/KP/CMP/2008/L.6, 12 December 2008).

members are not paid for their work. Recent practice shows that the EB, in order to better manage its workload, is increasingly delegating some of its tasks to the Secretariat whose role is consequently enlarged with new tasks and competences. Whether this practice proves to be effective and eventually will be introduced permanently in the system is to be seen.

As much as transparency of EB meetings is concerned, recently the board decided to limit attendance to its meetings for reasons of "economy and efficiency".[15] This trend towards less transparency and openness of the procedure appears criticisable as it may affect due process rights of the stakeholders involved.[16]

2.4 Proposals for CDM Reform

Among the key "ingredients" of the future climate change action there are undoubtedly the cost-effectiveness of mitigation activities, the importance of leveraging investments in new technologies which are capable of reducing GHG emissions, and the increased transfer of these technologies to developing countries.[17]

The role of the CDM is central in this perspective as it entails potentially all these elements. In fact, it is an effective mitigation tool, through which investments in developing countries are encouraged and, moreover, it may constitute a channel

[15] See Rule 27, para. 2 of the Rules of procedure of the Executive Board of the clean development mechanism (doc. FCCC/KP/CMP/2005/8/Add.1): "[…] the Executive Board may decide, in the interest of economy and efficiency, to limit attendance at its meetings to members, alternate members and secretariat support staff. In such instances, the Executive Board shall take all practicable steps to accommodate in other ways the interests of Parties, non-Parties to the Kyoto Protocol that are Parties to the Convention and accredited UNFCCC observers and stakeholders to observe its proceedings, except when the Executive Board decides to close all or a portion of a meeting."

[16] See C. Streck, J. Lin (2008) *Making markets work: a review of CDM performance and the need for reform*. Eur J Int Law 19:409, at 425: "In practice, there is a clear tendency to limit attendance to EB meetings and to conduct closed sessions. Recently, it has become more frequent that half of each EB meetings takes place behind closed doors. As a result, even those very entities that are directly affected by the decisions of the EB do not have access to the Board's meetings."

[17] According to para. 1(b) of the Bali Action Plan (Decision 1/CP.13, doc. FCCC/CP/2007/6/Add.1*) the future climate change action should aim at an "enhanced national/international action on mitigation of climate change" and should take in consideration "measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties […]" and "Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner".

to transfer new and clean technologies and thereby contribute to the sustainable development of developing countries.[18]

In order to effectively meet these challenges, the CDM should be reformed in order to overcome the shortcomings that, as shown in the previous paragraph, are currently affecting its operation and introduce new features that strengthen its environmental integrity, while remaining an appealing investment opportunity.

To this aim, current negotiations on the post-2012 regime are focusing on possible improvements to the flexibility mechanisms in general and to the CDM in particular.[19] The following paragraphs will analyse how some of the main issues relating to the possible CDM reform have been addressed in the current negotiations under the climate change regime.

2.4.1 Governance

Many proposals for reform relate to the need to modify the institutional structure of the CDM in view of streamlining its functioning and enhancing its legitimacy.[20] As pointed out earlier, the EB is facing difficulties and does not have the human and technical resources for dealing with all its duties. In this view, EB members should be employed on a full-time basis and specific competences should be required for them in order to be eligible.[21]

Another option currently under consideration is to delegate the technical decision-making of the EB to its support structure. While the delegation of certain activities is already taking place, clear and comprehensive rules and procedures should be adopted in order to endorse this practice. According to this scenario, the EB would supervise the projects' approval process and would play a more "strategic and policy" role. The support structure would remain accountable to

---

[18] See Decision 17/CP.7 "Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol", Preamble: "Further emphasizing that clean development mechanism project activities should lead to the transfer of environmentally safe and sound technology and know-how in addition to that required under Article 4, paragraph 5, of the Convention and Article 10 of the Kyoto Protocol". This aspect of the CDM has received minor attention, but in the future perspective it may play a key role. See Paulsson E (2009) A review of the CDM literature: from fine-tuning to critical scrutiny? Int Environ Agree 9:63–80, at p.73.

[19] For the most recent survey, see Summary of the Fifth Session of the Ad Hoc Working Group on Long Term Cooperative Action and the Seventh Session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol, at p. 9. www.iisd.ca/climate/ccwg5.

[20] On legitimacy criticisms addressed to the CDM governance, see J. Werksman (2008) *The "legitimate expectations" of investors and the CDM: balancing public goods and private rights under the climate change regime*. Carbon Clim Law Rev 2:95; F. Romanin Jacur (2009) *Paving the road to legitimacy for CDM institutions and procedures: learning from other experiences in international environmental governance*. Carbon Clim Law Rev 3:69.

[21] The need for a professionalization of the EB and its supporting bodies is called for by the IETA, State of the CDM 2008, and by the legal literature. See C. Streck and J. Lin, note 17, p. 437.

the EB and would provide regular and comprehensive reports on the activities undertaken.[22]

Recent discussions at the CMP highlighted also concerns relating to lack of transparency, predictability and, in general, of due process principles in the functioning of the CDM. In order to respond to these weaknesses, the CMP recommended the EB to apply the principle of non-retroactivity to all the acts adopted and to clarify sources on which decisions are taken in order to improve their predictability.[23]

Moreover, as already mentioned, transparency should be increased by, among others, facilitating participation and communication between the various actors involved in the process. In this regard, although during the projects evaluation process appropriate rules provide for involvement of citizens and local communities potentially affected by the implementation of the projects,[24] other stakeholders, such as project developers, do not have the opportunity to participate effectively in the procedure in front of the EB and to submit their opinions and comments with regard to the projects they are undertaking.

The need for an internal review procedure has emerged when the Secretariat received complaints by private entities claiming damages resulting from EB decisions adopted in breach of its own rules. Stakeholders challenged the legitimacy of these decisions and threatened to sue personally EB members. The risk of triggering national courts has raised concerns of EB members who asked urgently the CMP to provide them with appropriate immunities. While they could be entitled to privileges and immunities as recognized in the practice of similar bodies under the climate change regime,[25] commentators have criticized this approach because it fails to consider a preliminary argument, i.e. whether the alleged rights claimed by private stakeholders exist and are enforceable against the climate change regime institutions.[26]

In the view of granting enhanced due process guarantees to project developers, it has been envisaged to recognize a right of appeal to the stakeholders negatively affected by decisions of the EB. This would allow the parties involved in the CDM

---

[22] See compilation and analysis of available information on the scope, effectiveness and functioning of the flexibility mechanisms under the Kyoto Protocol, 16 October 2008, FCCC/KP/CMP/2008/INF.3, p. 4.

[23] See Decision 2/CMP.4, note 15, paras 13 and 14 stating, respectively, that the EB is requested to "summarize systematically the major issues that trigger a request for review and corresponding justification, to develop a dedicated document compiling the major criteria for decision-making during the review process and make it publicly available" and to "adhere to the principle that any decision, guidance, tool and rule shall not be applied retroactively".

[24] Some authors notice that these consultations are often useless because they take place at a late stage of the process, when decisions have already been taken and therefore do not have a real influence. See E. Lövbrand, T. Nordqvist, J. Rindefjäll (2007) Everyone loves a winner – expectations and realizations in the emerging CDM market. Paper presented at the Amsterdam conference on the human dimensions of global environmental change, Amsterdam, May 2007.

[25] This is the case, for example, of the Compliance Committee of the Kyoto Protocol.

[26] J. Werksman, note 20, p. 98.

process to submit their concerns to a review body, which would give clarifications with regard to alleged unfair decisions.

Two options have been envisaged with regard to the possible forms of the appeal. A first one foresees the EB as the body responsible to hear the appeals, under the condition that it delegates technical decisions to its support structure. According to the second one, it would be necessary to create a new body, whose composition, competences and powers are still open matters to be considered.[27]

2.4.2 Regional Distribution

With regard to the challenge of the unequal geographic distribution of the CDM, the actions adopted by the EB consisting in the simplification of the approval procedures have obtained only very limited success.

Other initiatives should be considered to encourage regional development of CDM projects and to ensure a preferential access for least developed countries hosting fewer than ten registered CDM projects, such as small island developing States and most African States. To this aim, the CMP has requested the EB to further "develop, in consultation with designated national entities, ways to streamline the process, […] without compromising environmental integrity" and has encouraged "Parties and entities in the private sector […] to support the identification and development of project design documents […] and to meet the cost of validating these projects".[28]

At the fourth CMP, the EC has submitted a proposal envisaging a differential treatment for countries that are under-represented in the CDM. The new measures to be introduced include, for example, preferential terms for market access and differentiating fees and levies applicable to CDM activities with regard to smaller and less developed countries.[29]

Moreover, the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) proposed to further streamlining the approval procedure for small-scale CDM projects, for example, by exempting them from the requirement to demonstrate additionality. Another far-reaching measure envisaged is to finance the validation, verification and certification phase through either the budget of the CDM or the financial mechanism of the convention.[30]

---

[27] See Compilation and analysis of available information, note 22, p. 6. M. von Unger, C. Streck (2009) An appellate body for the clean development mechanism: a due process requirement. Carbon Clim Law Rev 3:31.

[28] See Decision 2/CMP.4, note 14, paras 53 and 56.

[29] See Submission of France on behalf of the European Community and its member States (UNFCCC, Further input in relation to possible improvements to emissions trading and the project-based mechanisms under the Kyoto Protocol, UN doc. FCCC/KP/AWG/2008/MISC.7, p. 4).

[30] See Emission trading and the project-based mechanisms, Draft conclusions proposed by the Chair, doc. FCCC/KP/AWG/2008/L.12, 27 August 2008, Annex I, p. 7.

At its 46th meeting, in March 2009, the Executive Board launched a call for inputs for DNAs on how to address the issue of regional distribution.[31]

2.4.3 Sectoral CDM

A very interesting proposal that is at the heart of the ongoing discussions at the CMP and the AWG-KP relates to the introduction of sectoral crediting mechanisms.[32]

This approach would entail a reform of the CDM from a project-based system to a mechanism having as a reference a specific sector.[33] In other words, there would be an expansion of the benchmark used until now: the new sectoral CDM would be a "scaled-up form of the current CDM".[34] At present, the project-based CDM measures its additionality and its contribution to sustainable development against baselines and methodologies applicable on a case by case basis. This entails a costly and complicated procedure, for both the monitoring organs, which should verify that these conditions are met, and for the project developers, who are required to demonstrate the environmental integrity of each activity proposed.

In the sectoral approach scenario, emission reductions in a specific sector within a country would be credited against a sectoral reference level, either established on the basis of a baseline or of an agreed no-lose target. These benchmarks would reflect national circumstances and should be sufficiently ambitious, i.e. they should be set adequately below the business as usual scenario.

Another fundamental benefit linked to the introduction of sectoral CDM, is that it could allow the participation of developing countries in mitigation activities. In fact, non-Annex I Parties could propose a no-lose target for emissions from a certain sector; such targets would be approved by the CMP, or by a subsidiary body created by the CMP and operating under its guidance.[35] According to this scheme, the non-Annex I Party would receive upfront financing, technology and credits for verified emission reductions below the set target, but would not face any negative consequences in case the target is not met.[36]

---

[31] See Report of the Executive Board of the clean development mechanism, 46th meeting, doc. CDM-EB-46 (25 March 2009), para 98.

[32] See AWG-KP, note 30, p. 5.

[33] For instance, a sectoral project activity could be the modernization of the entire industrial sector in a country as a result of a specific government policy.

[34] Submission France, note 30, p. 6.

[35] As highlighted in the submissions of France on behalf of the EC (Submission of France, note 30, p. 5): "Compared to the project-based CDM, sectoral crediting mechanisms with ambitious baselines or no-lose targets would: significantly scale up finance for mitigation action; significantly strengthen developing countries' engagement in systematic mitigation action which is truly transformative in nature; address the problems of additionality where based on an ambitious sectoral reference level; reduce potential emission leakage by capturing all sectoral emissions; reduce administrative costs to participants."

[36] See AWG-KP, note 30, p. 5.

In the view of introducing a sectoral dimension of the CDM, it is important to develop appropriate rules and guidelines ensuring the effective functioning of the new mechanism, its environmental integrity, on one side, and also its economic viability on the other. In particular, clear criteria should be established on the basis of which sectoral baselines will be identified. Furthermore, specific procedures for monitoring, reporting and verifying the appropriateness and effectiveness of the emissions reductions achievement should be set up as well as adequate systems in order to avoid double counting with other CDM activities.[37]

2.4.4 The Eligibility of CCS and Nuclear Activities

Carbon capture and storage is a new technology through which high volumes of CO_2 may be processed and stored in reservoirs, such as geological formations, or old gas reservoirs. CCS technology is still at a research phase and its environmental integrity has raised public concern, especially with regard to the risk of leakages. However, it also represents a great opportunity and, if operating effectively, it would bring an important contribution to the reduction of GHG emissions released in the atmosphere.

This issue is currently being considered by many fora under the climate change regime, in particular, by the Subsidiary Body for Scientific and Technological Advice and by the AWG-KP.

Among the main problems raised by this new technology, the following are considered crucial: possible environmental impacts, definition of project boundaries, cost-effectiveness, administrative complexity, potential for perverse outcomes. Moreover, the feasibility of such activities is limited by the risk of leakages, which would entail a correspondent short and long-term liability, and by the need to set up appropriate monitoring, reporting and verification systems.[38]

Nuclear activities too are currently not eligible for the CDM, but during the negotiations several debates have taken place on whether in the post-2012, activities relating to new nuclear facilities may be registered as CDM projects and create CERs that may be sold in the carbon market. In particular, several issues are to be considered in such a context, namely: the identification of specific criteria or requirements which should serve to assess the eligibility of nuclear activities; the costs related to access to this technology; the possible solutions to the problems of non-proliferation and the permanent disposal of nuclear wastes, and, in general, the safety and security safeguards.[39]

Many states and several other stakeholders are sceptical on the inclusion of CCS and nuclear projects as CDM activities due to their environmental integrity

[37] Submission of France, note 30, p. 5.

[38] See AWG-KP, note 31, p. 4.

[39] *Ibidem*.

uncertainties.[40] In particular, Greenpeace has clearly stated that "dirty, unsafe or unproven technologies must continue to be excluded, namely nuclear power and carbon dioxide capture and storage".[41]

The EC has expressed favour with regard to broadening the scope of the CDM in order to include also CCS, provided that sufficient guarantees in technical and economical terms are found. In the view of achieving the necessary knowledge, the EC proposed to start with a pilot phase for the demonstration of CCS to facilitate a learning by doing approach.[42]

An opposite view compared to the one just mentioned is hold by the International Emissions Trading Association (IETA), which in its submission to the UNFCCC Secretariat maintains that CCS is a proven technology that can effectively contribute to sustainable development.[43]

2.4.5 Co-benefits as Criteria for the Registration of Project Activities

Another very interesting and far-reaching new issue currently discussed that could strengthen the environmental integrity of the CDM relates to the role of the co-benefits linked to CDM projects. Co-benefits may include *inter alia*: specific sustainable development benefits, energy efficiency, technology transfer, environmental services, such as conservation of biodiversity, poverty alleviation, economic growth and social benefits.[44]

Two different options have been envisaged with regard to this matter. In the first case, co-benefits should constitute a requirement to be met by all CDM projects. In this scenario, prior to the registration of the project activity, the DOE or the DNA

---

[40] Latest submissions of the Parties demonstrate that there is still a division on these issues. For example, Japan is in favour of the inclusion of both activities, New Zealand only for CCS and not for nuclear activities, and Brazil is against the eligibility of both. (Views on possible improvements to emission trading and the project-based mechanisms, Submissions from Parties, 29 May 2009 FCCC/KP/AWG/2009/MISC.9/Add.2)

[41] Greenpeace International, Submission to the AWG-KP on possible improvements to emission trading and the project-based mechanisms under the Kyoto Protocol, 17 October 2008.

[42] See doc. FCCC/SBSTA/2007/MISC.18/Add.1. The European Community has recently adopted Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (Official Journal of the European Union, OJ L140 of 5 June 2009, p. 114).

[43] See *Carbon Dioxide Capture and Geological Storage as a Clean Development Mechanism Project Activity*, Submission to the UNFCCC Secretariat by the International Emissions Trading Association (IETA), 16 June 2008.

[44] These are some of the issues considered relevant during the discussion by the AWG-KP. On these specific aspects, State Parties and accredited observers are invited to submit comments. See AWG-KP, note 30, p. 7.

in cooperation shall acknowledge that the proposed project activity demonstrates the respective co-benefits.

On the other side, the second option envisages that co-benefits should represent an additional requirement which, when it is met, entitles project activities to a preferential treatment.[45]

2.5 Conclusion

After almost 10 years of operation the CDM is now at a crossroads. Many different proposals have been made with regard to its reform; some would have a minor impact on its current institutional structure, while others would entail a radical rethinking of the overall CDM governance and of its procedures.

The main amendments to the actual CDM scenario relate to its governance and scope. With regard to the first aspect, the role of the EB is largely being discussed. It appears clearly that this body is now called to deal with an excessive workload, and is ill-equipped to effectively manage its tasks. Thus, a professionalization of this body is increasingly required by many stakeholders.

Other desirable reforms concern procedural aspects, such as the introduction of due process principles to enhance transparency and predictability, and as a more radical innovation, the provision for an internal review procedure.

As for the second set of arguments relating to other types of projects, such as CCS or nuclear energy, which could be eligible as CDM activities for the second commitment period, discussions mainly focus on their environmental integrity and effectiveness. Moreover, in case new types of CDM are adopted, such as the sector-based model, new procedures and amendments to existing rules would be required.

Looking at the whole CDM system, including its operation, its criticisms and current negotiations, in a post 2012 perspective, a recurring theme emerges: it relates to its contribution to sustainable development. Although being one of its objectives, as clearly set by article 12 of the Kyoto Protocol, this dimension of the CDM has been insufficiently taken into consideration, or at least underestimated in its concrete implementation. This practice has not gone unnoticed and indeed has attracted strong criticism. Moreover, current negotiations under different names and formulas, be it legitimacy, regional distribution or sectoral approach, refer at the end of the day to this same necessity of having a CDM more responsive to sustainable development demands.

[45] *Ibidem*, p. 8.

Chapter 3
Carbon Market and Carbon Contracts for CERs Transactions

Alessandra Barreca

3.1 Climate Change and the International Carbon Market

The current Climate Change policy is largely represented by the legislative framework provided by the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, whereby UNFCCC Annex I countries are called for greenhouse gases (GHG) emission reduction commitments on the basis of the targets specified in Annex B of the Kyoto Protocol.
These countries can achieve their emission limits commitments by:

1. Directly reducing their domestic emissions implementing specific environmentally sound national policies or by means of the three "flexible mechanisms" envisaged by the Kyoto Protocol, namely:
2. The International Emission Trading (IET, article 17 of the Kyoto Protocol), allowing the trading of the emission permits
3. The Clean Development Mechanism (CDM article 12 of the Kyoto Protocol) and the Joint Implementation (JI, article 6 of the Kyoto Protocol), relying on project based activities generating emission reduction credits

The aforementioned three flexible mechanisms have in common the fact that they somehow allow trade within the carbon market of specific emission reduction units (ERUs), generally called Kyoto Units, correspondent to the equivalent of 1 Mt CO_2.

In the case of the CDM activities, the Kyoto Units traded in the carbon market are called Certified Emission Reductions (CERs) and, notably, they are generated by the CDM project itself.

The twofold purpose of the CDM, assisting developing Non Annex I countries in achieving sustainable development by hosting the CDM projects and by benefiting from the projects' investments and activities and, at the same time, helping the Annex I Party promoting the project in meeting its GHG emission reduction

A. Barreca
Programme Manager, Environmental Legal Team , University of Siena

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_3,

commitments as set in Annex B of the Kyoto Protocol, by benefiting from the credits generated as a consequence of the project (CERs), is decisive to understand the main drivers of the CERs carbon market.

To this respect, keeping in mind that each CER has a *value*, generally described as a *cash value*, equivalent to 1 Mt CO_2 and correspondent to the right to emit a certain quantity of GHG, it can be easily understood that the CERs carbon market is dominated by compliance and/or speculative drivers, since the purchase of the credits can be made for two purposes:

1. For compliance purposes: i.e. to comply with the Annex I Country's quantitative emission reduction limits commitments (QERLC)
2. For mere "market trade purposes": i.e. to re-sell them in the market, mostly to buyers characterized by compliance needs that can be met using the CERs purchased

Undoubtedly, the Carbon Market, considered as a whole comprehensive of the IET, the JI and the CDM markets, is a platform of vital importance in the framework of the Kyoto Protocol flexible mechanisms because it allows the concrete use of the emission reductions they generate, by trading them directly and immediately between the investor/compliance buyer and the host country/seller or also by means of a secondary trade between a voluntary/compliance buyer and the seller.

The current picture of the International Carbon Market reveals that this market is far from being homogenous, being rather a mosaic of different segments of markets, the most relevant of which are listed below:

- The International Emission Trading (IET) market and the EU Emission Trading Scheme (EU ETS), where Assigned Amount Units (AAUs) are traded.
- The CDM market, where CERs are traded.
- The JI market, where ERUs are traded.
- Some voluntary domestic markets such as the New South Wales GHG Abatement Scheme (NSW GGAS) and the Chicago Climate Exchange (CCX), where Verified Emission Reductions (VERs) are traded.

Despite this fragmentation, all the above markets are based on the sell/purchase mechanisms and the motivations described above *sub* (1) and (2).

The following section provides a more detailed description of the Carbon Market structure and players.

3.2 The International Carbon Market Structure and Players

The mosaic of markets currently forming the International Carbon Market include:

1. Allowances-based markets from international and domestic emission trading schemes (CAP and Trade systems)
2. Credit-based markets related to the project-based mechanisms (JI, CDM)
3. Voluntary and sub-national trading markets

The underlying commodity traded in all these markets is the same, namely Mt of CO_2 equivalent, and the trade in question is carried out by means of specific sale and purchase agreements called *carbon contracts.*[1]

For reasons of transparency and certainty any transaction realized in the carbon market rely on a system of registries accounting and tracing all the sale and purchase activities as expression of ERUs and/or Allowances movements.

However the drivers, the identity of the buyers/sellers, the prices, the demand and supply can significantly differ from one market to the other.

Indeed while in the first two types of market structures cited above (CAP and Trade schemes and project based markets) the main driver is the compliance one, in the last kind of market, the voluntary one, the demand is not motivated by strict compliance needs, since the players of the market voluntary decide to limit their carbon emissions and trade Emission Reductions (ERs) to implement – voluntary-emission cutting commitments.[2]

Before going ahead in our reasoning, it is worthy specifying that while allowances characterizing the CAP and Trade markets are allocated under a national/international legislative framework setting the CAP (emission limits), the project based ERs units traded in the related markets are to be generated in compliance with a specific regulatory framework, based on peculiar production processes, standards of issuance and eligibility requirements, involving different entities often located in different countries thus involving relevant generation, transaction and time costs.

These reasons justify the major risks and higher prices characterizing the project based ERs if compared to the one related to the CAP and Trade allowances.

Shifting the attention on the players of the carbon markets, we can identify them as follows:

- Primary/secondary buyers and sellers
- Intermediaries
- ERs suppliers
- ERs users

Starting from the nature of the buyers and sellers of the different carbon markets, it can be noted that while in the Kyoto Protocol compliance market and in the CAP and Trade schemes the main buyers belong to Annex I countries highly industrialized, motivated by carbon constraints at national (see for example the EU ETS) or international level (see the Kyoto Protocol commitments), in the voluntary markets the majority of the buyers are represented by private companies or public entities acting as pre-compliance purchasers.

More in detail, currently, the main buyers of compliance units are represented by[3]:

- EU private buyers involved in the EU ETS (private sector companies)
- Annex I Governments involved in the Kyoto Protocol compliance (public buyers)

---

[1] See Section 3.5.

[2] It cannot be excluded that even the voluntary market buyers may purchase ERUs for a sort of pre-compliance purpose, foreseeing an imminent accession to the Kyoto Protocol legal framework and QERLC.

[3] Source: World Bank, State and Trends of the Carbon Market 2009.

- Investors and traders belonging to Carbon Funds
- Retailers and consumers regulated by the Australian New South Wales market
- North American Companies with voluntary but legally binding commitments under the Chicago Climate Exchange

With regard to the sellers, in the Kyoto Protocol project based markets they are usually Non Annex I Countries hosting CDM or Annex I Parties hosting JI, while in the Emission Trading Schemes markets they are usually industrial installations characterized by environmentally virtuous performances, or different kind of other traders and brokers.

If we consider again the identity of the sellers acting in the sectoral market of the CERs generated by CDM, especially referring to the primary market,[4] unsurprisingly, the majority of them is represented by Countries, such as China, dominating the market throughout the recent years, followed by India and the rest of Asia, particularly active in hosting CDM projects and characterized by a highly attractive potential for Annex I investors.

It should be noticed that the end users of the ERs may not be always also the first buyers of them.

Indeed, in the case of a buyer motivated exclusively by a compliance driver, the trade is directly between the seller (usually Non Annex I country) and the first and last buyer (Annex I country), and we deal with a so-called *primary carbon market* whose ERs, called *primary ERs*, are assets purchased and used by the same entity that faces QELR commitments.[5]

On the contrary, in the case of a trade dominated by more speculative motivations, where the first buyer is not the final user of the ERs but aims rather at re-trading them via their allocation on the market again, to sell them to a second buyer who may well be driven by compliance purposes, we deal with a so-called *secondary market*, whose ERs, called *secondary ERs*, are subject to more than one purchase activity and where the first buyer is neither the last one nor the ERs end user.[6]

This second scenario allows the presence, in the carbon market, of entities acting as intermediaries between the buyer and the seller, such as brokers, Carbon Funds, Carbon Exchange Platforms or private sector financial companies.

In the project based markets, the suppliers of ERs may be the project developers, host countries, local authorities, financiers such as Carbon Funds, NGOs, while in the CAP and Trade ones they usually are mandated installations willing to sell their allowances.

Special attention has to be given to the Carbon Funds (governative, mixed or private entities) which are a creation of the carbon finance,[7] specifically established for the purpose of making investments in the carbon market especially by acquiring

[4] For a description of primary market see further below in this paragraph.

[5] This case corresponds to the case sub (1) described in the previous paragraph.

[6] This second case corresponds to the case sub (2) described in the previous paragraph.

[7] The term *"carbon finance"* indicates the whole investment activities in the projects generating tradable credits, plus the related financial and contractual tools.

CERs and JI ERUs, to be further distributed among the participants to the fund proportionally to their investments.

Notably, Carbon Funds are not used to directly invest in a CDM project, but their objectives are rather:

- Contribute to GHG cutting via supporting the JI and the CDM
- Promote environmentally sound investments and green technology spread
- Support the Host Countries sustainable development

Currently, the World Bank has decisively taken the lead in the Carbon Funds establishment and management as it may easily be inferred from the number of funds and facilities it is participating to, which are listed below[8]:

1. The Prototype Carbon Fund
2. The Netherlands CDM Facility
3. The Community Development Carbon Fund
4. The Bio Carbon Fund
5. The Italian Carbon Fund
6. The Netherlands European Carbon Facility
7. The Danish Carbon Fund
8. The Spanish Carbon Fund
9. The Umbrella Carbon Facility
10. The Forest Carbon Partnership Facility
11. The Carbon Fund for Europe

3.3 The EU Emission Trading Scheme

The EU ETS, the World's largest CO_2 trading system, represents a cornerstone in the EU Climate Change policy.

It has been established by EC Directive 2003/87,[9] it is mandatory for all the 27 EU Member States and represents the main example of CAP and Trade allowances based market where the buyer purchases emission allowances issued by the regulators of the CAP and Trade regime.

The Scheme is related to the Kyoto Protocol via the *linking directive*[10] allowing the use, even if with some exceptions, of CDM generated CERs and ERUs coming from JI for meeting the EU ETS targets.

The EU ETS provides for capping the emissions of CO_2 by fixing specific roofs in terms of emission allowances for each of the EU Member States.

---

[8] More details on the nature, composition and missions of these Funds are available on www.carbonfinance.org.

[9] Directive 2003/87/EC of 13 October 2003, in OJ L275 of 25 October 2003, p. 32.

[10] For more details see Directive 2004/101/EC of 27 October, in OJ L338 of 13 November 2004, p. 18.

Industrial installations covered by the Directive in need of more EU Allowances to comply with the CAP can purchase them from the surplus of other suppliers and the transaction is operated and registered through a specific system of registries.

Each Member State has its national register, supervised by the EU one, called Community Independent Transaction Log (CITL), recording the issuance, transfer, cancellation, retirement and banking of allowances that take place.

Starting from 2008 until 2012, the EU ETS is facing its Phase II, characterised by an EU Allowances allocation whereby, upon Member State's choice, up to 90% of them is freely allocated while the remaining 10% is to be auctioned.

Following the findings of COP-13 and COP/MOP-3 as enshrined in the Bali Action Plan, whereby industrialised Parties have been urged to cut their GHG emissions 30% by 2020 and 60–80% by 2050, the European Community reaffirmed its commitments towards more stringent emission caps.

Thus, in January 2008, the EU Commission put forward a proposal of strong revision of the ETS Directive, as part of the "EU Climate Action and Renewable Energy Package", in December 2008 the European Parliament and Council reached agreement on it and, finally, on 6 April 2009 the EU Council adopted the climate-energy legislative package containing measures to fight climate change and promote renewable energy.

This package aims at achieving the EC overall environmental target of a 20% GHG reduction and a 20% share of renewable energy in the EC total energy consumption by 2020 and, as already mentioned, contains the newly adopted and amended EU ETS Directive published in the Official Journal of the European Union on 5 June 2009.[11]

The new expanded and strengthened EU ETS Directive is to be transposed by 31 December 2012 and be fully operative from 2013 onwards.

Among the most relevant novelties, it is worth mentioning the following ones: in order to contribute to the achievement of the EC GHG long term emission reduction commitments, the emissions of installations covered by the EU ETS scheme should be reduced in a cost-effective manner, therefore emission allowances allocated to those installations should be 21% below their 2005 emission levels by 2020; a single EU-wide CAP on ETS emissions is to be set, so National Allocation Plans previously used to distribute the allowances among Member States installations will disappear; free allocation of emission allowances will be progressively replaced by auctioning of allowances by 2020; emissions from the aviation sector shall be covered by the ETS Directive.

The industrial categories of activities falling into the scope of the new EU ETS Directive are specified in the new Annex I replacing the old one.

Very interestingly, in 2007 and 2008 the EU ETS dominated the global carbon market, both under the perspective of number of transactions and monetary value of them.

[11] See Directive 2009/29/EC of 23 April 2009 amending Directive 2003/87/EC, in OJ L140 of 5 June 2009, p. 63.

In fact the latest available data reported more than 3 billion contracts of EU Allowances with a transaction value of approximately €63 billion, almost doubling the results reported in 2008.[12]

Generally speaking, the analysis shows that larger EU Countries held the majority of allowances with Germany accounting for 22%, UK 12%, Poland 10%, Italy 9% and Spain 7%.[13]

3.4 The Clean Development Mechanism Market for CERs

The CDM market is a credit-based, project based market, where CDM generated CERs are traded.

Notably, as a project credit based market, the CERs one relies on the so-called *carbon asset*, i.e. the potential of GHG emission reductions that a CDM project is able to generate and sell.

Keeping in mind the reasoning of paragraphs 3.1 and 3.2, here suffice it to remember that the CDM credit market, as any other, may be driven both by compliance and "non compliance/speculative/investment" purposes and that this type of market may be defined primary or secondary depending on the fact that CERs are sold directly by the seller to the buyer via a first transaction (primary market case) regulated by a contract, or a second or even further transaction, always regulated by a contract, whereby further buyers, sellers and intermediaries are involved besides and after the primary ones (secondary market).

One of the fundamental mechanisms characterizing the CERs trade is the transactions recording realized via tracks of the national registries (NRs) as well as of the International Transaction Log (ITL).

> Each Party included in Annex I with a commitment inscribed in Annex B shall establish and maintain a national registry to ensure the accurate accounting of the issuance, holding, transfer, acquisition, cancellation and retirement of ERUs, CERs, AAUs and RMUs and the carry-over of ERUs, CERs and AAUs" and "any two or more Parties may voluntarily maintain their national respective national registries in a consolidated system, provided that each national registry remains distinct.[14]

It can be easily inferred that NRs purpose is to track assigned amount holdings and transactions, thus facilitating flexible mechanisms, assisting the Countries compliance and promoting transparency.[15]

---

[12] Source: World Bank, State and Trends of the Carbon Market 2009.

[13] Source: World Bank, State and Trends of Carbon Market 2008, data referring to year 2007.

[14] Paragraphs 17–18, UNFCCC/CP/2001/13/Add.2.

[15] Each NR includes, at least, one holding account for the government, one holding account for each authorised legal entity, on retirement account for each period, three cancellation accounts: net sinks emissions, non compliance, other cancellations.

NRs are linked to the ITL, connected with the CITL of the EU ETS and administrated by the UNFCCC Secretariat, whose purpose is to track all official issuance, transfer between registries, retirement and cancellation of assigned amount, and verify the legitimacy of all transactions in real-time (credits issued properly, valid because not retired or cancelled, owned by transferring Party, eligibility of Party).[16]

For instance, considering the CDM case, the ITL records "transactions" (issuance, cancellation, replacement, transfer) of CERs from the UNFCCC Executive Board CDM Registry to the NRs of Annex I Parties in accordance with the Kyoto Protocol legislative framework.[17]

Some data and figures[18] reporting on the current state of the art of the carbon market may give a taste of the magnitude of this dynamic market, representing the second largest segment of the carbon market, after the EU ETS one.

Indeed the most recent data available at the time of writing refer to year 2008, and they report that in 2008 the CDM market (primary and secondary) accounted for the majority of project based transactions, with a monetary value of €18 billion (fivefold increase over 2007 value).

Always referring to the latest figures on the CDM credit market, we can state that its main driver is still represented by the need of compliance with the Kyoto Protocol commitments and for the third consecutive year European buyers, especially belonging to the private sector, continued to dominate the CDM market for compliance purpose.[19]

On the other hand, and not surprisingly, the most active seller in 2008 has been China, the Country hosting the majority of CDM, with 84% of share of CERs volume supplied, followed by India (4%) and rest of Asia (4%), Latin America Countries (Brazil alone 3%) and Africa (2%).

---

[16] Each registry is to be connected to the ITL through secure communication channels established across the Internet. These connections will allow a registry to receive an immediate response from the ITL, typically within a matter seconds after sending the transaction information. Source: UNFCCC website.

[17] The ITL verifies transactions proposed by registries to ensure they are consistent with rules agreed under the Kyoto Protocol. Each registry sends transaction proposals to the ITL, which checks each proposal and returns to the registry its approval or rejection. Once approved, registries complete the transaction. In the event that a transaction is rejected, the ITL sends a code indicating which ITL check has been failed and the registry terminates the transaction. Source: UNFCCC website.

[18] The source of all the data and the figures reported is the World Bank State and Trends of the Carbon Market 2008 and the World Bank, State and Trends of the Carbon Market 2009.

[19] For more details see: World Bank State and Trends of the Carbon Market 2008 and World Bank State and Trends of the Carbon Market 2009.

Undoubtedly, the particular reliability of China as a Host Country characterized by large size, economy of scale and friendly investment climate made it particularly appealing for investors and CERs buyers.[20]

Interestingly, an insight on the CDM project types delivering the credits transacted reveals that clean energy projects (renewable energy, fuel switching and energy efficiency) in 2008 took the lead, accounting for 82% of volumes transacted as share of volumes supplied.

Despite this, CDM energy efficiency and renewable energy projects should grow in the future, given the power emergencies and black outs many Host Countries are still experiencing.

However, there is still some skepticism towards the expected rate growth of such projects, considering the high upfront costs involved by these types of projects and the barrier represented by the complex CDM monitoring methodology of large scale projects currently in force.

Finally, an overview on CERs prices throughout 2007 and 2008 shows that in 2007 prices for primary CERs to be delivered on the base of a forward contract ranged between €8–13, with an average contracted price of US$13.60 or €9.90.[21]

In the same year, the price for CERs coming from projects at an earlier stage stood at around €8–10 (possibly even €7–11, depending on countries and project types), while registered projects with streamlined technology (e.g., HFC with storage options) were priced between €11–13.

Projects demonstrating strong sustainability and community benefits (such as those certified under the Gold Standard) could easily fetch a €1–1.5 premium, and towards the end of the year Gold Standard CERs reached a price of €15.[22]

In 2008, the average price of a CER was €11.46, increasing up to 16% compared to 2007 price.[23]

However, prior to October 2008 prices ranged within €8–16, while at the end of the year up till now prices are reported to range between €6–8, due to the global financial crisis.

By the way, CERs related to CDM projects at a more advanced and "guaranteed" stage are still transacted at a higher price compared to the ones at an earlier stage of the project cycle.

---

[20] China consolidated its position as the pre-eminent carbon supplier, by quadrupling its number of projects in the pipeline from January 2007 to March 2008. Then, until March 2009, the CDM pipeline in China continued to grow, reaching about 1730 projects, with 800 of them entering the pipeline since January 2008. China is well ahead of other countries in the CDM pipeline with 53% of potential CER supply until 2012 and, with 1104 projects, also pulled ahead of India in the number of projects in the CDM pipeline. China also nearly doubled its expected CER deliveries by 2012 over that period of time (Source: World Bank State and Trends of the Carbon Market 2008 and World Bank State and Trends of the Carbon Market 2009).

[21] The main market benchmarks for price were the prices characterizing transactions with CERs produced in China.

[22] Source: World Bank, State and Trends of the Carbon Market 2008.

[23] Source: World Bank, State and Trends of the Carbon Market 2009.

3.5 Carbon Contracts Main Features and Parties

Carbon contracts are civil law agreements between two or more parties, formalizing a legal transaction realized among them.

The specific underlying transaction is the purchase of a peculiar commodity: the Emission Reductions representing the right to emit a certain quantity of CO_2 equivalent.

These contracts are constitutive elements of the carbon finance and of the related carbon market, since they allow the concrete trade of the Kyoto Units, namely CERs in this case, between sellers and buyers that can satisfy their respective interests through a sale and purchase activity regulated in all its legal aspects by the carbon contract.

It has to be noted that CERs are crediting rights, correspondent to the right to emit a certain quantity of greenhouse gas equivalent to the total value of the CERs (CO_2e), generated by a CDM project based activity.

Furthermore, it has to be underlined that such a crediting right has been created by the Kyoto Protocol international legislative framework, therefore we can define it as a "legislative right", and such a legislative right is related to an immaterial commodity.

From our reasoning we can firstly conclude that carbon contracts objective is the sale and purchase of "legislative, immaterial, project based crediting rights", and secondly that they regulate a typical civil law transaction, a purchase, introduced in an International Law legislative context, whose parties belong to different countries, i.e. to different legislative systems.

Therefore, carbon contracts certainly have transnational features, stemming from the nationality of their parties, from the peculiar nature of the commodity sold through them and from the transnational nature of the (carbon) market they are enforced into.

Besides, since carbon contracts refer to a CDM project activity generating the commodity sold, in principle they regulate long term contractual relations.

All of these aspects pose a first important question on the choice of the most suitable legislative framework to regulate the carbon contracts and all the relevant related issues. This choice has to be made by the parties, and is of foremost importance, provided that the parties involved in the contractual relationship not only belong to different legal systems but may also be driven by various and, potentially, conflicting interests without sharing the same leverage in the contractual relationship.

As any kind of other contract, carbon contracts, involving a sale and purchase agreement, give rise to some specific reciprocal obligations between the parties. The main contractual obligation of the seller is to transfer the property of the CERs to the counterpart, whereas the buyer first obligation to be complied with is to pay the seller the due price for the CERs.

Keeping in mind that the parties involved in carbon contracts may be driven by both compliance or speculative purposes, depending on whether the first buyer will

also be the end user of the CERs sold or will rather re-allocate the CERs into the market by re-selling them to further buyers (end users or not), we can state that carbon contracts may refer to primary or secondary transactions and may consequently be agreed and enforced in a primary or secondary carbon market.

It should be noted that carbon contracts represent a fundamental element of the carbon market trading system and they also perfectly fit into the Kyoto Protocol article 12 legislative purpose since, by means of the CERs transactions, they allow the fulfillment of both Annex I Parties need to comply with their Kyoto Protocol quantitative emission reduction limitation commitments (QERLC) and of Non Annex I Parties interest to achieve sustainable development through appealing foreign investments oriented to CDM projects realization.

This also gives the sense of how much challenging carbon contracts may be, since, through the means of the CDM projects, they integrate environmental and climate change law into civil and commercial law field.

3.6 Carbon Contracts Minimum Standard Content

In the previous section, we have already said that carbon contracts peculiarity not only stems from the particular nature of the commodity sold, but also from the fact that they involve a cross border transaction between sellers and buyers belonging to different countries regulated by different legislative systems.

As a result, and keeping in mind that sellers and buyers, the first frequently belonging to Non Annex I and the latter to Annex I Countries, are driven by potentially conflicting purposes, it is very important to avoid any chance to over-exploitation of their different positions and interests in order to ensure a due leverage in the carbon contract.[24]

This goal can be reached only through the draft and use of carbon contracts with clear-cut terms and conditions.

It is therefore extremely recommendable to the parties to protect their respective interests and legal positions in the contractual relationship, by using their so-called *contractual autonomy* in order to agree on specific carbon contracts characterized by a *minimum standard* content.[25]

---

[24] This may easily be understood by considering the simplest case of a seller represented by a Non Annex I Country and a buyer represented by an Annex I Country. In this case the seller may exploit the buyer need of CERs to comply with its QELRC and, on the other hand, the buyer may exploit its financial advantage to make pressures on the seller in need of investments, technological and financial resources to reach sustainable development.

[25] Please note that many aspects of the contractual subject are regulated, *inter alia*, by the private international law rules provided by the *1980 Rome Convention applicable to the Contractual Obligations.*

More in detail, the following aspects of the contracts need special attention to ensure the satisfaction of both the contractual parties' interests:

- Recitals should comprise a summary of the purpose and subject matter of the contract (for the buyer to buy and for the seller to sell the rights to the ERs generated by a particular project activity) and refer to the UNFCCC and to the Kyoto Protocol legislative framework.
- The contract should always refer to the underlying CDM project activity expected to generate the tradable CERs and clearly define it (baseline scenario, project activities to be performed, expected greenhouse gas reductions and expected quantity of CERs production as consequence of the project – with reference to the vintage, i.e., year of their generation, monitoring plan, certification activities, eventual external auditing).
- There should be clear clauses concerning the obligations to be performed by the parties.
- A definition of the rights sold should be provided.
- Modalities and mechanisms of CERs delivery should be fixed (capacity to deliver, imposition of delivery obligations, point at which the legal title on CERs is transferred).
- The price and terms of payment should be clearly set (price to be paid for CERs, issues such as penalties for late payments).
- Taxation, levies and charges issues (fees to be paid for registration) should be set and distributed between the parties.
- It should be stated whether the buyer eventually has some shares in the CDM project's revenues.
- Clauses on shortfall, insolvency or failure to deliver should be fixed.
- Issues of risk allocation should be addressed.
- The contract should include warranties to cover the CERs (expected to be free of any encumbrance or other dealings and valid).
- Clauses on liability and indemnities should be set to define and circumscribe to what extent either of both parties should be liable for damages.
- Provisions on default, termination, remedies and dispute settlement should be included.
- A general provision identifying the law on interpretation of the contract should be included.

The aspects mentioned above are of foremost importance to ensure stability and solidity to the carbon contract, as well as its reliability.

Indeed, some standardized forms of carbon contracts have been elaborated by the World Bank and the International Emission Trading Association, to act as facilitators for the parties wishing to conclude a carbon transaction with the assurance of reliable and well structured contractual terms.[26]

[26] More details on the WB and the IETA carbon contracts are available on www.carbonfinance.org and on www.ieta.org.

3.7 Insights into the Main Carbon Contract Types

The development and use of a standard format of carbon contract can act as a catalyst for the sellers and the buyers wishing to trade into the carbon market in a secure and acceptable risk controlled manner.

However, as already pointed out, the choice on the type of contract to be concluded ultimately relies on the parties whose contractual autonomy very often takes the lead, always in full respect of the borders represented by what law on contracts allows in as much as licit.

Keeping in mind our reasoning on the capability of the parties to design "their own" contract, that is the one most suitable to respond to their needs and peculiarities, we can nevertheless identify some typical carbon contract models, based on standard features and clauses, as the ones identified and described in the previous section.

The use of these contracts may facilitate the contractual bargain by allowing both the parties involved to plan and foresee their respective duties and rights, obligations and benefits, once entered into the contractual relationship.

Before going ahead, it is worthy specifying that carbon contracts, as legal acts referring to a CERs transaction, may be "stand alone" sale and purchase contracts, or may be part of a broader agreement, for example related to an entire investment activity or to a joint venture establishment.

The following sections will provide a brief description on the main types of carbon contracts.

3.7.1 The Emission Reduction Purchase Agreement

ERPA is an acronym, standing for Emission Reduction Purchase Agreement.

It is the most relevant and widespread type of carbon contract, probably thanks to the models drafted and diffused by the World Bank and the International Emission Trading Association.

Indeed, both of these international organizations did not develop a specific ERPA regarding the sale and purchase of a specific quantity of CERs generated by a certain CDM project but they rather provided a general and abstract ERPA model characterised by some key clauses focusing on relevant aspects and minimum standard content that should be recommendable to use as a support and reliable model when drafting concrete CDM CERs carbon contracts.

3.7.2 The Spot Transactions

The Spot Transactions carbon contract model is a very simple one.

Indeed, in this contractual case the parties agree on the sell and purchase of a determined quantity of already existing CERs on the basis of an immediate payment for them.

Therefore this contractual type is characterised by an extremely low risk and does not envisage any future or postponed delivery and payment.

Besides, parties are not prevented anyway to conclude future carbon contracts between them.

3.7.3 The Forward Transactions at Fixed or Floating Price

The forward transactions of CERs imply the agreement on a carbon contract providing for a future delivery of CERs with a future payment for them.

This structure, dominating the current carbon market trends, envisages a so-called *pay on delivery* scheme, whereby the quantity of CERs sold as well as their price per unit are clearly set at the moment of contract conclusion (with all the other elements described in paragraph 3.6 as part of the minimum standard content of the contract) but the delivery and the payment are postponed to a future moment, on the basis of a precise schedule and, usually, with no upfront payment at all.

More in detail, forward transactions may be at fixed or at floating price, and the difference relies in the fact that if in the first case the price of the CERs traded is not subject to changes, in the second one the parties of the contract agree for the price to be indexed, usually on an yearly basis.

It is not unusual for the parties to determine a floor and a roof price, in order to contain the higher risks involved by this peculiar contractual structure.

3.7.4 The Equity Investment

Given the particular nature of the carbon contracts, always linked with an underlying CDM project activity generating the commodity to be sold, we can consider that the buyer of the CERs involved in a primary transaction, may well be interested not only into the purchase of CERs but also into having a certain degree of active participation in the CDM project activity revenues.

In this case, the primary buyer may invest in the CDM project and will have CERs coming from the project activity plus shares and equity in the activity itself.

It cannot be excluded that in some cases, such as for example the one of a CDM project finalized to renewable energy production, the CDM project investor may buy both the CERs and part of the renewable energy generated by the project.

This contractual type, perfectly showing the twofold interest of a potential buyer/investor in reaching its QELRC compliance and in *making business* by investing in developing Countries, concretely gives the taste of the strong link between the carbon market and carbon contracts *ratio* and the CDM project one.

It should be borne in mind that in the Equity Investment case a real financial investment in the CDM project is involved. Therefore the carbon contract shall be drafted in compliance with all the relevant foreign investment law requirements.

3.7.5 The CDM Technology Swap

When referring to CERs transactions involving a technology swap, the starting point for the analysis should be how this transfer is regarded in the Kyoto Protocol and in the UNFCCC legislative framework.

Indeed, taking into account the current International Law principles governing the cooperation finalized at helping Third Countries in reaching their sustainable development,[27] the Protocol and the Convention strongly support the clean technology transfer as a means to increase the opportunity of environmentally sound development of Non Annex I Countries.[28]

In this perspective, the contractual arrangement providing for the Annex I party licensing or selling its green technology (software, know how, expertise, training, staff, machineries) to a Non Annex I Party for the CDM project realization, receiving the CDM project generated CERs, is deeply encouraged.

It should be noted that it is not unlikely for the technology provider to ask for the inclusion in the contract of opportune warranties to secure its technology.

Considering the twofold purpose of article 12 of the Kyoto Protocol, namely helping Annex I Countries in complying with their QELRC and supporting Non Annex I Parties in their path towards sustainable development, and considering that environmentally sound development is a fundamental pillar of sustainability, this contractual type appears very much in line with the spirit of the CDM as defined in article 12 of the Protocol.

3.7.6 The Joint Venture

The Joint Venture (JV) is one of the most common contractual structures established to carry out business activities.

Indeed the JV is exactly a business arrangement that two or more parties conclude to jointly carry out an economic activity, offering the chance to exploit the advantages offered by pooling the expertise as well as all the financial and material resources of the parties.

JV may well be established to carry out a CDM project activity generating CERs, and, in this case, the contract shall spell out and define the precise respective roles and commitments of the JV parties as well as their rights on the CERs that will be generated by the underlying CDM activity (especially with regard to CERs allocation between the parties).

The parties of the JV may belong to both Annex I and/or Non Annex I Countries.

---

[27] See among others the UN Millennium Development Goals available on www.un.org/millenniumgoals.

[28] See artt. 4.1, 4.3, 4.5 and 10.2 (c) UNFCCC and artt. 11.2 and 12 of the Kyoto Protocol.

3.8 Conclusion

The UNFCCC and the Kyoto Protocol created a legislative framework that goes beyond the pure environmental area and encompasses the commercial economic and civil law fields.

This is mainly due to the cross cutting goals set in article 12 of the Kyoto Protocol, namely the sustainable development achievement and the greenhouse gas reduction commitments, to be implemented through the CDM flexible mechanism, generating bankable commodities, the so-called CERs, to be traded in the carbon market by means of contractual arrangements represented by carbon contracts.

The international Carbon Market seems to be a liquid market with expectations of prosperity and growth throughout the years, and represents a visible success of the countries efforts to implement mitigation policies without compromising their industrial and economic development interests.

In 2008 the total monetary value of this market has been estimated in €86 billion (US$126 billion)[29] showing that a robust, efficient and reliable carbon market can be a successful solution for the implementation of the Climate Change Policy**.**

Considering the CDM projects in the pipeline, economists estimate that the supply of CERs to be placed in the relevant carbon market expected for the period 2008–2012 will reach 1.6 billion.

Besides, even the voluntary market participants are showing more interest in the ETS as well as in the compliance markets.

However, and despite this optimistic data, whether the carbon market will last and grow will mostly depend on the post-2012 scenario.

A certain degree of risk still surrounds the carbon assets transactions, as long as the destiny of the Kyoto Protocol, as well as of the International Climate Policy, will remain uncertain.

Besides, the procedural delays that CDM projects are currently facing within their approval process, and the regulatory bottlenecks (out of 3.188 CDM projects in the pipeline, 2.022 at the validation stage), coupled with complex rules on DOEs and projects registration procedures, increase the investors and buyers risk perception, consequently threatening the carbon market speed up and streamlining process.

Therefore it will be crucial to give to the Kyoto Protocol legislative framework an enduring life and efficiency, as the Parties to the UNFCCC apparently committed to do after the COP-14, held in Poznan in December 2008.

In designing the post 2012 phase, the attention should therefore focus on setting realistic targets and strengthening the access to the carbon market and on grounding the Climate Change policy and legal framework on pillars of good governance, political commitment and public consensus.

[29] Source: World Bank, State and Trends of the Carbon Market 2009.

Section II
Institutional Aspects of the Kyoto Protocol Implementation: The Establishment of the DNAs in the Western Balkans

Chapter 4
The Designated National Authority (DNA): Requirements, Models, Competences, Best Practices

Mariachiara Alberton

4.1 Introduction

The creation of the suitable framework to host CDM projects involves institutional and legislative preparations and changes.

One of the benefits of national preparations is that clarity on national decision-making processes will improve a country's attractiveness to potential CDM investors. Foreign investors look for the most cost-effective opportunities but are also more likely to seek CDM project opportunities in countries that have well organized project approval processes.[1] Therefore, when establishing the national framework to host CDM projects, the achievement of a good balance between protection of national values and attraction of foreign investment should be put at the top of the agenda.[2]

The participation of a developing country in the CDM requires, first of all, the ratification of the Kyoto Protocol, the voluntary participation to the mechanism and the designation of a National Authority for the CDM. The Designated National Authority (DNA) for the CDM is the national body which evaluates potential CDM projects and provides written approval confirming that the project activity is voluntary, complies with national and international criteria and assists in achieving sustainable development of the host country.

This contribution introduces and explores the implications of establishing the DNA, providing an overview of the steps needed to create such an authority, some remarks on its possible structures, a description of its role and functions and finally focusing on some of the most relevant national experiences of DNA developed recently. Moreover, it provides some insights on the concept of sustainable development as applicable to the CDM framework, including an overview of the most relevant examples of sustainable development criteria selected worldwide.

M. Alberton
Former Member of Environmental Legal Team, University of Siena

[1] See A. Michaelowa (2005) *Creating the foundation for host country participation in the CDM: experiences and challenges in CDM capacity building*. In: F. Yamin (ed.) Climate change and carbon markets – a handbook of emission reduction mechanisms. Earthscan, London, pp. 305–320.

[2] See UNDP (2003) The clean development mechanism: a user's guide. UNDP Bureau for Development Policy, New York.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_4,

4.2 Steps in Creating the DNA

The DNA is an institution that needs to be established, staffed, trained, managed, maintained, updated to carry out its work properly.[3] It incurs the same typical costs every institution and organization has to deal with, costs which can be described as:

– Costs of political organization setting (ex-ante costs)
– Costs of maintenance or ongoing costs (ex-post costs)

Generally speaking, the following 12 steps should be considered when establishing a new authority as the DNA:

1. Preliminary consultation among national authorities and stakeholders

A preliminary activity of dissemination of information, as well as capacity-building to local officials and stakeholders with regard to the main features of the Kyoto Protocol and the CDM should be undertaken in order to raise awareness on the issue within the country.

2. Definition of the role and functions the DNA has to play

The DNA can perform several functions, as described in paragraph 3 of the article, both regulatory and promotional ones. Each country should select the role and functions to be played by the DNA according to the national priorities and development goals. Promotional functions, though not mandatory, are important vehicles for host countries to become more visible on the international carbon market.

3. Identification of the most suitable DNA structure for the country

Once the DNA role and functions are precisely defined, it should be easier to select the best structure among the seven possible ones described in paragraph 4, having the balanced advantages and disadvantages of each model. However, the choice is likely to be influenced also by political and institutional factors.

4. Assessment of the legal basis for the DNA establishment

The establishment of the DNA must be officially approved by the key political institutions. Depending on the structure of the DNA and the national institutional framework, official validation of the DNA could be granted through a parliamentary act, a ministerial or a presidential decree, or other legislative or regulatory instruments.

5. Review and draft of the national legal framework

In parallel to the official recognition of the DNA, some other legislative-regulatory reforms could be undertaken to foster CDM investments. Potential CDM investors

[3] See A. Michaelowa (2003) *CDM host country institution building. Mitigation Adapt Strateg global change* 8:201–220

look at countries with a friendly investment regulatory system. Legislative sectors likely to be affected by reforms could be foreign investment legislation, taxation law, energy and environmental laws, urban and land development legislation.

6. Fund and staff the DNA

The DNA establishment and maintenance require financial and human resources. Financial support can be obtained by participating ministries and departments of the government, donor funds for institutional support, and fees from projects participants. The DNA also needs technical skills and human resources to function properly. In particular, a proper expertise is essential to understand all CDM project requirements, national development priorities, legal issues related to CDM projects and environmental impact assessment, when required. When staffing the DNA several options should be considered according to the structure and budget of the authority, namely a permanent or ad-hoc staff, full-time or part-time staff, technical or administrative staff.

7. Establish a guide for the presentation of projects

The drafting of an introductory guide on the national CDM criteria for project developers is among the promotional functions a DNA should undertake.

8. Define national procedures for projects evaluation and approval

Countries with the most clear and transparent procedures are likely to attract international investments. Therefore the DNA should implement a standardized procedure for screening, evaluating and approving CDM projects. Some guidelines have already been developed by international organizations and institutions (e.g., the World Bank Program Carbon Fund)[4] which can serve as a basis once adapted to the national priorities and needs.

9. Elaboration of national sustainable development criteria

As stated in the Kyoto Protocol[5] the purpose of the CDM is to assist non-Annex I countries in achieving sustainable development. The DNA is in charge of deciding

[4] See www.wbcarbonfinance.org

[5] Article 12 of the Kyoto Protocol reads as follows:

2) The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

3) Under the clean development mechanism:

a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions; and

b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of parties serving as the meeting of the Parties to this Protocol (UNFCCC).

whether a CDM project contributes to this goal or not. Therefore, the elaboration of national sustainable criteria is of particular relevance for the host country. In selecting the national SD criteria, the DNA should avoid criteria too general or not applicable to the specific type of projects.

10. Integrate CDM with national sustainable development policies and objectives

CDM should be included in national programmes and policies to be an effective tool of sustainable development promotion. Some countries have integrated the CDM into sustainable development strategies and environmental action plans.

11. Creation of the DNA website

The provision of a good and updated website containing all the information (possibly in English) on the CDM approval process adopted by the country is strongly recommended in order to have international visibility.

12. Reporting

Being among the regulatory functions of the DNA, the draft of an annual report on CDM activities to be sent to the UNFCCC Secretariat is the last step to be mentioned.

4.3 DNA Role and Functions

The functions of a DNA are mainly the establishment of national eligibility criteria for CDM projects, the selection of national procedures for evaluating and approving projects as well as the provision of the necessary forms to be used in these procedures, and the confirmation that the project contributes to sustainable development. Beside these regulatory functions, the DNA should also perform additional activities like promotional activities to attract foreign investors.

Therefore, DNA functions[6] can be grouped in two categories, namely regulatory and promotional functions:

1. Regulatory functions:
   - To establish and enforce national rules for project eligibility, submission and approval
   - To confirm compliance with national sustainable development goals by evaluating whether the CDM project meets the host Party's sustainable development criteria
   - To certify compliance with other country-specific regulations and criteria, such as Environmental Impact Assessment (EIA)

[6] See UNDP, *The Clean Development Mechanism. An Assessment of Progress,* (2006); UNEP, *Legal Issues Guidebook to the Clean Development Mechanisms*, (2004); World Bank, *The Establishment of Designated National Authorities under the Clean Development Mechanism of the Kyoto Protocol*, (2003).

- To issue the host country approval letter, including confirmation that the Party has ratified the Kyoto Protocol and certification that the project meets national sustainable development goals and is undertaken on a voluntary basis
- To report to the UNFCCC Secretariat on the CDM activities annually

2. Promotional functions:

- To make available information on the CDM project cycle, DNA structure and project review procedures through a website or other sources.
- To be a contact point for potential project developers.
- To be a contact point for financial lending institutions to facilitate investment in CDM projects.
- To provide technical assistance to project developers for the preparation of project proposals.
- To assist project proponents during contract negotiations with investors.
- To attract donors for capacity building for CDM projects and financing.
- To organize promotional activities targeting international carbon investors and funds.

The activities that the DNA undertakes are likely to differ from country to country, depending also on the structure of the authority, as better explained in the next paragraph.

4.4 DNA Possible Structures

The Kyoto Protocol and the related documents do not contain specific rules on the establishment of the DNA, on the structure to choose, on the functioning of the new body. The only requirement specifically stated is that DNAs are registered at the UNFCCC Secretariat.[7] There is no clear evidence in favour of one DNA model, since all structures have advantages and disadvantages. Therefore, host countries should tailor DNA structures and processes according to their resources and expected needs and should establish transparent processes for project approval and decision-making. Theoretically, the host country can choose among seven DNA approaches:

1. UNFCCC focal point as DNA

DNA can be located within the existing UNFCCC focal point, so as to reduce the burden of the establishment of a new administrative body in countries with limited CDM potential. This solution presents the following advantages:

- Exploits already existing structures
- Exploits experience and specific knowledge and expertise
- There are no fixed costs as the focal point already exists
- It avoids the burden of amending the existing framework laws simply requiring a by-law or a decision to be approved.

[7] See http://cdm.unfccc.int/DNA/index.html

Some disadvantages can be:

– UNFCCC focal point staff may be overcommitting itself
– The need of external consultants for the development of CDM activities.
– Single department/government model

2. Ministerial Incorportaion

The DNA can be located within the Ministry for the Environment or the Ministry of Energy or the Ministry of Economy. Most of the countries have opted for the Ministry for the Environment as the most suitable institution to host the DNA.
This solution presents the following advantages:

– Exploits already existing structures
– Exploits experience and specific knowledge and expertise
– Reduces structure and implementation costs
– Avoids the burden of amending the existing framework laws simply requiring a by-law or a decision to be approved
– Speeds up the approval process of CDM projects

Some disadvantages can be:

– DNA staff may be distracted from the main duties related to the CDM projects approval.
– The decision-making powers are concentrated in one Ministry.

3. Two unit independent body

In the two-unit model the DNA activities are divided between two departments or between a department and an independent unit. The first body is in charge of CDM approval and regulatory functions, the latter is responsible for marketing and promotional activities.
This solution presents the following advantages:

– Focuses specifically on CDM issues.
– Potential problems of interdepartmental rivalry and overlapping of responsibilities are minimized.

Some disadvantages could be

– Financial, technical and human resources are required.
– Costs arise as there are two agencies.
– Burden of amending the existing framework laws increases.

4. Inter-ministerial body

The DNA can also be established as an interdepartmental body representing different Ministries. Usually the DNA as an inter-ministerial body consists of two units:

– A joint committee, including different experts, stakeholders and staff from different ministries, which decides on CDM projects;

– A secretariat, in the form of a permanent body, which performs all the organizational, technical and administrative work for the joint committee.

This solution presents the following advantages:

– Institutionalizes the cooperation between different ministries
– Guarantees the exchange of information and broad support for approved projects
– Enables a more effective integration of the CDM into national development priorities and decision-making processes
– Ensures the involvement of a wide range of bodies
– Shares experiences with specific sectors

Some disadvantages could be:

– Ministries could fight for the role of decision-maker for a long time (in particular in the developing countries where any climate change activity is perceived as an income opportunity).
– Delays in cases of interdepartmental rivalry in the CDM approval process.
– Higher administrative costs.
– Increased coordination efforts.
– The need of a large consensus.
– The need of participation of all appointed members.
– Independent and new office outside the government/outsourcing model

5. Independent Office

The DNA could also be established as an independent office outside the Government offices. This private body evaluates and validates projects and reports to a government agency which issues the final letter of approval.
This solution presents the following advantages:

– Avoids governmental burocracy
– Focuses specifically on CDM issues
– Ensures independency from the government

Some disadvantages could be the following:

– Funding problems
– Structure and implementation costs
– Burden of amending the existing framework laws
– Governments may be unwilling to delegate authority to an independent body
– Foreign Direct Investment body

6. Foreign Direct Investment Body

Considering that most of the countries have a Foreign Direct Investment body, the DNA can be located within the existing structure. Usually this framework consists of two offices, one in charge of promoting foreign investments and the other one for project approval, which can be used as a DNA.

This solution presents the following advantages:

– Exploits already existing structures.
– Exploits specific knowledge and expertise.
– There are no fixed costs as the office already exists.
– Avoids the burden of amending the existing framework laws simply requiring a by-law or a decision to be approved.

Some disadvantages can be:

– Conflicts of interests may arise if the DNA is also involved in promotional activities.
– Lack of experts who deal with specific aspects of the CDM.

7. EIA Authority Incorporation

The DNA could also be established within the already existing Environmental Impact Assessment authority. In this case an additional component could be put in place acting as DNA.
This solution presents the following advantages:

– Exploits already existing structures.
– Exploits specific knowledge and expertise.
– There are no fixed costs as the office already exists.
– Avoids the burden of amending the existing framework laws simply requiring a bylaw or a decision to be approved.
– Helps to monitor project impacts after their implementation.

Some disadvantages could be the following:

– Staff and training needed on specific CDM aspects.
– Conflicts of interests may arise if the DNA is also involved in promotional activities.

The decision on how and where to establish the DNA is likely to be influenced by national, political and institutional factors. Whatever approach is adopted, it is important to keep in mind that the DNA should be a clear point of contact for entities willing to pursue a CDM project, and that it should facilitate transparent, effective and efficient CDM projects approval.

4.5 Selecting Sustainable Development Criteria for CDM Projects

In the UNFCCC and the related Kyoto Protocol sustainable development is mentioned as one of the CDM objectives (Article 12 of the Kyoto Protocol). With the 2001 Marrakech Accords,[8] the rules for implementing the CDM were put in place and in the Preamble it

[8] Marrakesh Accords, Decision 17/CP.7/CMP.1 Modalities and procedures for a clean development mechanism. For comments, see Rosales J, Pronove G (2003) An implementation guide to the clean development mechanism: putting the marrakech accords into practice. UNCTAD-Earth Council. http://r0.unctad.org/ghg/sitecurrent/download_c /publications.html.

is affirmed that: "it is the host Party's prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development".[9]

The subsequent Delhi Declaration on Climate Change and Sustainable Development[10] highlighted the principle of common but differentiated responsibilities of countries to address climate change, reaffirmed development and poverty eradication as overriding priorities in developing countries and emphasized the integration of climate change objectives into national sustainable development strategies.

In 2002 the Johannesburg Plan of Implementation of the World Summit on Sustainable Development[11] further built on the achievements already reached, promoting sustainable development in the field of climate change. During the last decade, the United Nations have been carrying out a major program for developing indicators of sustainable development[12] and eventually UNEP published the "CDM Sustainable Development Impacts guidelines"[13] in 2004, recognizing that sustainable development is a sovereign matter for each host country, and recommending a list of criteria and subcriteria for their assessment. Those are grouped in the traditional three categories (social, economical, environmental criteria) and include:

- Social criteria
  - Improve quality of life
  - Alleviate poverty
  - Improve equity
- Economic criteria
  - Provide financial returns to local entities
  - Result in a positive impact on the balance of payments
  - Transfer new technology
- Environmental criteria
  - Reduce GHG emissions and the use of fossil fuels
  - Conserve local resources
  - Reduce pressure on local environments
  - Provide improved health and other environmental benefits
  - Meet local renewable energy portfolio standards and other environmental policies

UNEP has also developed a 6 step procedure for a generic assessment of Sustainable Development (SD) impacts of CDM projects:

---

[9] On the sustainable development criteria for CDM projects, see M. Montini (2008) Sustainable development within the climate change regime. In: A. C. Bugge, C. Voight (eds) Sustainable development in international and national law. Europa Law Publishing, p. 523.

[10] Agreed to at the Eighth Conference of the Parties to the UNFCCC in 2002.

[11] Available at http://www.un.org/esa/sustdev/documents/WSSD_POI _PD/English/POIToc.htm.

[12] For example, the United Nations Commission on Sustainable Development (UNCSD) has developed a comprehensive set of indicators which are listed at http://www.un.org/esa/sustdev/natlinfo/indicators/indisd/isdms 2001/table_4.htm

[13] Available at www.cd4cdm.org/Publications/CDM%20Sustainable%20 Development%20 Impacts.pdf

1. The first step sets the background by establishing an overview of the major national development goals.
2. The second step selects the SD criteria on the basis of national SD policy priorities. The criteria should include economic, social, and environmental dimensions of SD.
3. The third step includes an initial screening of sectors for CDM project candidates.
4. The fourth step includes decisions on definition of indicators and their measurement standards, as well as the design of an approach for assessing the indicators.
5. The fifth step includes the establishment of a dialogue between the government, national stakeholders and project developers. Moreover, a detailed assessment of CDM project impacts on SD policies as part of the final project preparation should be carried out.
6. The sixth step refers to the evaluation of the performance of the implemented CDM projects with respect to the chosen SD criteria as a supplement to monitoring, verification and certification procedures.

In addition, several methodologies and approaches for the assessment of sustainable development impacts of CDM projects have been developed and used in the last decade.[14] These can be grouped in the following four categories:

1. The Cost Effectiveness Analysis, which involves a direct examination of the costs of mitigation options against the potential GHG reductions and provides for a ranking of projects on that basis.
2. The Cost Benefit Approach, which estimates all the project's costs and all the projects benefits and calculates the difference: if this is positive, the project passes the economic test.
3. The Multicriteria Analysis, which is an useful tool where there is a decision to be made based on different types of information.
4. The Ranking Methodologies, including the Checklist approach, the Baseline and Best Practice Approach and the Analytical Hierarchy Approach. Under the Checklist approach, a checklist of indicators is drawn up based on the indicators felt to be important to ensure sustainable development from CDM projects; projects would then be ranked negative, positive or neutral against these indicators, with sustainability being shown by an overall positive rating.[15]

The Baseline and Best Practice Approach is a methodology of scaling the different qualitative and quantitative indicators to a basis of indicators ranging from −1 to +1 where −1 indicates a strongly negative impact of the project on the indicator in question and +1 indicates a strongly positive impact.

[14] See UNEP, *CDM Sustainable Development Impacts*, 2004; M. K. Lee (ed) (2004) *CDM information and guidebook*, 2nd ed. UNEP Risø Centre, Roskilde.

[15] The international NGO SouthSouthNorth (SSN) has developed a commonly referred to and used checklist tool for appraising the suitability of proposed CDM projects. The tool is called the SSN matrix tool and it consists of eligibility criteria, additionality filters, sustainable development indicators, and feasibility indicators. The SSN matrix tool has been applied to projects in Bangladesh, Indonesia, South Africa, and Brazil.

The Analytical Hierarchy Approach provides a tool for scoring and weighing of non-quantifiable attributes of a mitigation option.

In the next section, some examples of methodologies and approaches for the assessment of sustainable development impacts of CDM projects selected by several national authorities are provided.

4.6 A Comparison of Different DNA Experiences

Keeping in mind the issues described in the previous sections, some national DNA experiences and some insights on the sustainable development criteria selected worldwide are presented in order to provide possible models for those countries involved in the setting procedure to host CDM projects.

In particular the experiences of some selected Countries will be presented here, including Brazil, Peru, China, India, Cambodia, Georgia, Israel, Morocco, South Africa.

The Brazilian Interministerial Commission on Global Climate Change (CIMGC)[16] was created in 1999 and serves as DNA. The Commission is composed of members from the Ministries of Science and Technology, Environment, Foreign Affairs, Agriculture, Livestock and Supply, Transportation, Mines and Energy, Development, Industry and Foreign Trade, and the Chief of Staff of the Presidency of the Republic. The Minister of Science and Technology chairs the CIMGC and acts as Executive Secretariat; the Minister of the Environment is the vice-chair of CIMGC. The Executive Secretariat maintains a database of all projects proposed under the CDM, containing information about the PDDs, the reports that served as the basis for the decision of the Commission, and the validation and verification reports of emission reductions from approved projects. For the purposes of obtaining approval for project activities under the CDM, project proponents shall submit to the Executive Secretariat of the Interministerial Commission on Global Climate Change, in electronic and printed format, the project design document containing a description of the contribution of the project activity to sustainable development. The five aspects of the project's contribution to sustainable development are the following: contribution to the local environmental sustainability; contribution to the development of work conditions and net job generation; contribution to income distribution; contribution to technological development and capacity-building; contribution to regional integration and interaction with other sectors.

[16] See http://www.mct.gov.br/index.php/content/view/13986.html. See M. Chaparro (2006) *DNA structure and CDM project approval process in five Latin American Countries: Argentina, Brazil, Chile, Mexico, and Peru.* In: CDM Investment Newsletter No. 2/2006. Bureau of Environmental Analysis and Climate Business Network, Nairobi/Vienna, pp 7–10; C. Figueres (2004) *Institutional Capacity to Integrate Economic Development and Climate Change Considerations: An Assessment of DNAs in Latin America and the Caribbean*, Inter American Development Bank, Washington DC, 2004; L. Morera, O. Cabeza, T. Black-Arbeláez (2003) *The state of development of national CDM offices in Central and South America*, CCNM/GF/SD/ENV(2003)9/FINAL. OECD, Paris.

In Peru, the activities related to CDM are fostered mainly by two institutions: the National Environmental Council (CONAM),[17] which is the UNFCCC focal point and since 2002 acts as DNA in charge for evaluation and approval of CDM projects, and the Environmental Fund (Fondo Nacional del Ambiente, FONAM), which is the promoter and provides financial support for CDM projects. In particular, CONAM has instituted a Climate Change Unit which is in charge of generating knowledge and awareness on the different levels of climate change. CONAM's Executive Secretary delegates the operation of the DNA to the Climate Change Unit which comprises a Head and an environmental expert. The unit receives support from the Climate Change Cooperation Programme (PROCLIM). CONAM assesses sustainable development benefits of CDM projects on a case-by-case basis and focuses on five aspects: compliance with Peruvian Environmental Impact Assessment (EIA) regulations; consistency with specific sectoral and development plans; consistency with the Peruvian environmental agenda; application of proven technology; consideration of the stakeholders' and local community needs.

FONAM is an environmental fund created by a Congress bill, but ruled under private law. It is staffed with national consultants trained in carbon markets organizations, experts in the CDM projects, experts in the strengthening of CDM institutions. FONAM is a non-profit institution of public and social interests, with the objective of promoting and supporting the financing of public and private investment in environmental projects, as well as supporting the financing of the policy and environmental management of the country. FONAM is the official CDM promotion office and also the Focal Point of the World Bank's Carbon Finance in Peru.

The Chinese DNA[18] provides an example of inter-ministerial structure.

The National Development and Reform Commission (NDRC) was established in 2005, serving as the Chinese DNA. The NDRC is in charge of the following responsibilities: to accept CDM project application; to approve CDM project activities jointly with Ministry of Science and Technology (MOST) and Ministry of Foreign Affairs (MFA), on the basis of the conclusion made by the National CDM Board; to issue written approval letter on behalf of the Government of China; to supervise the implementation of CDM project activities; to establish the CDM project management institute.

The National CDM Board was established under the National Climate Change Coordination Committee and is composed of seven relevant governmental agencies: NDRC, Ministry of Science and Technology, Ministry of Foreign Affair (MOFA), State Environmental Protection Administration (SEPA, since 2008 Ministry of the

[17] Consejo Nacional del Ambiente, www.conam.gob.pe. See FONAM (Fondo Nacional del Ambiente-Perú) (2006) Clean development mechanism: a business opportunity in Peru. FONAM, Lima; Figueres C (ed) (2002) Establishing national authorities for the CDM: a guide for developing countries. International Institute for Sustainable Development and the Center for Sustainable Development in the Americas, Winnipeg/Washington, DC.

[18] See IGES, CREIA (2005) CDM country guide for China: first edition. Kanagawa. http://cdm.ccchina.gov.cn/english

Environment, MOE), China Meteorological Administration (CMA), Ministry of Finance (MoF), and Ministry of Agriculture (MoA).

The National Climate Change Coordination Committee is responsible for the review and coordination of important CDM policies. Procedures for the application and approval of CDM projects in China are the following: the project proponent submits to NDRC project application and the required documents; NDRC entrusts relevant organizations for expert review of the applied project, and submits it to the national CDM Board; NDRC approves, jointly with MOST and MFA, projects based on the conclusion made by the national CDM Board, and issues approval letter accordingly. The CDM approval procedure requires that the project in question conforms to international criteria, to China's sustainable development strategy and policies, as well as to the general requirements of economic and social development programmes and promotes the transfer of environmentally friendly technology to China. CDM projects have to meet the following sustainable development criteria: complement national economic and environmental strategy, transfer technology and financial resources, provide sustainable ways of energy production, increase energy efficiency and conservation, alleviate poverty through income and employment generation, produce local environmental co-benefits. Moreover, the following priority areas of sustainable development are set for CDM implementation in China: energy efficiency improvement; development and utilization of new and renewable energy sources; methane recovery and utilization.

The Indian government established the National CDM Authority[19] as an independent agency with representatives of different ministries coordinated by the Ministry of Environment and Forests. The Secretary of the National CDM Authority is responsible for the day-to-day activities of the Authority including constituting committees or sub-groups to coordinate and examine the proposals or to get detailed examination of the project proposals. The evaluation process of CDM projects includes an assessment of the probability of the successful implementation of CDM projects and the evaluation of the extent to which projects meet the sustainable development objectives, as it would seek to prioritize projects in accordance with national priorities. The criteria selected to confirm whether a clean development mechanism project activity assists India in achieving sustainable development are: social well being (the CDM project activity should lead to alleviation of poverty by generating additional employment, removal of social disparities and contribution to provision of basic amenities to people leading to improvement in quality of life of people), economic well being (the CDM project activity should bring in additional investment consistent with the needs of the people), environmental well being (the CDM project activity should include a discussion on the impact of the project activity on resource sustainability and resource degradation, if any, due to the proposed activity; bio-diversity friendliness; impact on human

[19] See M. Krey (2004) Transaction costs of CDM projects in India – an empirical survey. HWWA, Discussion Paper, Hamburg; IGES (2005) CDM country guide for India: second edition. Kanagawa. http://cdmindia.nic.in/index.htm

health; reduction of levels of pollution in general), technological well being (the CDM project activity should lead to the transfer of environmentally safe and sound technologies that are comparable to the best practices in order to assist in the upgrading of the technological base).

The Cambodian DNA[20] was established in 2003 and presents the following structure: (a) the DNA Board, composed of one representative for each relevant Ministry (i.e. Environment, Agriculture, Forestry and Fisheries, Industry, Mines and Energy, Planning, Public Work and Transport, Council for the Development of Cambodia) and chaired by the Minister of Environment. The DNA Board assesses proposed CDM projects, issues an official letter confirming voluntary participation and fulfilment of national sustainable development objectives and approves or rejects proposed CDM projects. (b) The DNA Secretariat is embodied in the Cambodian Climate Change Office. The Secretariat serves as the national contact point for CDM activities, receives and screens PDDs for completeness, coordinates working group activities, coordinates consultation of stakeholders, requests of additional information from project proponents. (c) The Technical Inter-Ministerial Working Groups, i.e. Energy and Forestry Working Groups, review PDDs against sustainable development, prepare the Project Technical Assessment Report, including technical and policy recommendations for the DNA Board, and submit it to the DNA Secretariat.

The CDM project approval process consists of different phases. First of all the DNA Secretariat checks if the documents submitted by the project proponents are complete, sends the Working Groups the PDD and conducts the public consultation. After that, the DNA Secretariat prepares a final evaluation report for the DNA Board which assesses the project and issues the approval/rejection letter. A sustainable development matrix is used for the assessment of a project's contribution towards sustainable development. Evaluation criteria are classified into four groups: economic (use of local business and industries, share of project budget spent in the country, reduced dependence on fossil fuels, reduced dependence on imported energy), social (poverty alleviation, provision of community infrastructures, stakeholder consultation, access to community assets, equity in accessing the community benefits of the project for the target communities, creation of employment in the country, impact on public health, gender equity), environmental (contribution to mitigation of global climate, reduction in air, water, soil, noise pollution, biodiversity conservation, sustainable use of land, forest, mineral, water resources, archaeological, cultural, historical and spiritual heritage), and technology transfer (transfer of appropriate and best available technology, capacity building). Each indicator is evaluated according to three ratings: positive, neutral, or negative.

The National Agency on Climate Change (NACC) was established in 2003 as the DNA of Georgia[21] under the responsibility of the Ministry of Environment.

---

[20] See IGES (2005) CDM country guide for Cambodia: second edition. Kanagawa. http://www.camclimate.org.kh

[21] See M. Shvangiradze (2005) *Country case study: designated national authority in Georgia*; Ministry of Environmental Protection and Natural Resources of Georgia, National Agency of Climate Change, Tbilissi. http://www.climatechange.telenet.ge

Two years later a new Governmental Resolution on the DNA delegated this authority to the Ministry of Environmental Protection and Natural Resources of Georgia. The new DNA structure consists of: (a) the CDM National Board, which is the ad-hoc Committee including high level officials from sectoral ministries and headed by the Minister of Environmental Protection and Natural Resources. The CDM National Board approves CDM projects following the CDM national procedures. (b) The DNA Secretariat comprises the UNFCCC National Focal Point and the Department of Climate Change of the Ministry of Environmental Protection and Natural Resources. The DNA Secretariat is entrusted with the following tasks: undertakes a preliminary evaluation of CDM projects, gives recommendations to the CDM national board, elaborates sustainable development criteria, provides information to potential CDM project proponents; involves stakeholder participation; assists parties in the preparation of PDDs.

The Georgian requirements in terms of sustainable development criteria for CDM project approval are: social criteria (stakeholder participation, improved services availability, intellectual and technical capacity development), environmental criteria (the project has to generate a decreased pressure on the environment, assessed under some criteria, i.e. contribution to reduction of fossil energy resources, contribution to air quality improvement, contribution to better water quality, contribution to soil pollution reduction, waste management, combating erosion, biodiversity conservation and fight against unsustainable use of biomass), and economic criteria (the project has to create a positive effect on economic development, to be assessed under the following sub criteria: regional economy improvement through generation of wealth in disadvantaged areas, employment generation, sustainable technology transfer and technical innovation for the Country).

Israel created a Designated National Authority (DNA) within the Ministry of the Environment in 2004. The DNA includes representatives of various government and public bodies, such as Ministry of the Environment, Ministry of Transportation, Ministry of Industry and Trade, Ministry of National Infrastructures, Ministry of Finance, Ministry of Agriculture, Manufacturers Association of Israel, Israel Electric Corporation and environmental NGO representatives. Project applicants requesting an approval letter submit a Project Design Document (PDD) to the DNA. The DNA checks whether the proposed project meets the following sustainable development criteria: environmental criteria (project's impact on global climate change, i.e. scope of reduction, reduction of fossil fuel use and switch to clean fuels; contribution to local environmental sustainability, i.e. reduction of hazardous materials, reduction of radiation, protection of open space, reduction of sewage quantities and improvement of their quality, preservation of biodiversity and ecosystems; reduction of other pollutants to the air), social criteria (contribution to the net number of employed persons as a result of project implementation; improvement in the quality of life of weak populations), economic and technological impacts (development of clean technologies and transfer of knowledge to Israel; establishment of infrastructure; wise and efficient use of resources, i.e. energy efficiency, improvement of production processes, green procurement). A CDM project is considered compliant with the above-mentioned criteria when the score for each

of the impact areas (economic, social and environment) is at least 0. Estimated approval time is 10 weeks.

The Moroccan DNA[22] was established in the same year as the ratification of the Kyoto Protocol in 2002. It is located at the Ministry of Land Planning, Water and Environment and consists of: (a) the National Council, which is chaired by the Minister of Land Planning, Water and Environment and includes all important ministries as well as representatives of enterprises, banks, associations and research institutes. The Council assesses CDM projects evaluating both international and national criteria compliance. (b) The Permanent Secretariat provides information and is the contact point for investors in Morocco.

CDM applications and documents must be submitted to the Secretariat. To approve CDM projects Morocco requires the satisfaction of the following national sustainable development criteria: contribution to global climate change attenuation through CO_2 equivalent gases emission reductions, contribution to local environment protection through significant greenhouse gases reduction, contribution to increase national employment rate, positive effects on national macro and micro economy contribution to national economy stability, contribution to best technology transfer, contribution to energy and other natural resources conservation.

South Africa established the DNA in 2004 within the Department of Minerals and Energy.[23] The responsibilities of the DNA are allocated to the Director-General of the Department of Minerals and Energy, who shall perform all such powers, duties and functions of the DNA, and may delegate any power conferred on that authority to one or more officials in the Department of Minerals and Energy. The DNA supervises the approval process for potential CDM projects, provides support to project developers and promotes South Africa as an attractive location for potential CDM investors. The DNA for South Africa has developed an approval procedure to evaluate CDM projects (about 45 working days) which may include a voluntary preliminary phase through the submission of a Project Idea Note (PIN). The project developer then submits the project details to the DNA in the form of a Project Design Document (PDD), which is published on the DNA website for public comments. The DNA evaluates the project on the basis of the information included in the PDD, as well as the comments provided by the stakeholders and the advisory body, and makes its final decision issuing a letter of approval. A set of sustainable development criteria is used to guide this evaluation: environmental criteria (impact on local environmental quality, on air quality, on water pollution, on the generation or disposal of solid waste, any other positive or negative environmental impacts of the project, impact of the project on community access to natural resources, impact of the project on the sustainability of use of water, minerals or other non-renewable natural resources, impact of the project on the efficiency of

[22] For more information see www.mdpmaroc.com

[23] Regulation No. 721 under Section 25(3) of the National Environmental Management Act (1998) establishing the DNA was issued on 24 December 2004 by the Minister of the Department of Environmental Affairs and Tourism of South Africa (see http://www.dme.gov.za/dna/index.stm).

resource utilisation, impacts on biodiversity and ecosystems), economic criteria (impact of the project on foreign exchange requirements, on existing economic activity in the area, on the cost of energy, on foreign direct investment, implications for the transfer of technology, impacts of the project on local skills development), social criteria (alignment with national and local development priorities, impact on employment levels, on community social structures, on social heritage, contribution to the development of previously underdeveloped areas or specially designated development nodes). Together with the above mentioned criteria, the DNA also uses a general indicator that encompasses social and economic factors, i.e. the general project acceptability. Therefore, the distribution of project benefits is evaluated with regard to reasonableness and fairness.

4.7 Conclusion

The DNA's importance lies in the fact that it is the link between a host country and the international CDM Executive Board and broadly the international community. Moreover, its approval means that a CDM project is in accordance with a country's development policy. From what has been discussed so far, the DNA's operation is linked to important tasks which require specific skills. Hence, it is crucial to select the most appropriate structure according to the political and institutional situation of the country and to adopt transparent and consistent approval systems, uniform formats for necessary documents, standardized approval timeframe, sector specific sustainable development criteria. The analysis of some of the existing DNA structures and approval procedures worldwide reveals that many options can guarantee a proper operation of the DNA. Therefore, the already existing experiences may enhance the current debate and provide useful insights to those Non-Annex I countries interested in attracting more CDM projects, by setting up or revising their DNA structure.

Chapter 5
DNAs Experiences in the Western Balkans: The Republic of Albania

Alessandra Barreca and Ermira Koçu Deçka

5.1 Introduction

The Republic of Albania, placed in southeastern Europe, precisely in the western part of the Balkan Peninsula, counts 3,400,000 inhabitants within a surface area of 28,745 km^2 where different religious ethnic groups live together.[1]

Nowadays the country is a Parliamentary democracy, based on a unicameral system established under a Constitution renewed in 1998.

However in the relatively recent past, it passed through some troubled political and social vicissitudes.

In fact, between 1944 and 1991, the Communist Party, better known at that time as the Albanian Party of Labor, controlled Albania's Government establishing a strong isolationism policy where ties with the rest of the world were cut and private ownership and private enterprise were absolutely forbidden.

The Communist regime led the country into deeper isolation and economic and social collapse until, eventually, as a result of the 1992 elections the Communists regime has been overthrown and Albania started its hard way towards reforms, experiencing its transition from a centralized to a market economy.[2]

Alessandra Barreca
Programme Manager of Environmental Legal Team, University of Siena

Ermira Koçu Deçka
Member of the Environmental Legal Team, University of Siena

[1] After Independence (1912) from the Ottoman Empire, Albania never had an official State religion and in 1967, under the State policy of obliterating all organized religion from Albanian territories, all faiths were banned and mosques, as well as any other religious site were closed. Religious freedom has returned to Albania since the regime's change in 1992, and currently most of the population is Muslim (around 70%), albeit there are also some minorities Orthodox Christians (almost 20%) and Roman Catholics (almost 10%).

[2] The cornerstones of the economic reform programme were price and exchange system liberalization, fiscal consolidation, monetary restraint and a strong income policy, integrated by a comprehensive package of structural reforms including privatization, enterprise, financial sector reform and the creation of a legal framework for a market economy and private sector activity. Most agriculture, State housing, and small industry were privatized and so were transport, services and small and medium-sized enterprises. In 1995, the government began privatizing large State enterprises.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_5,

The democratization path, currently still in progress, is being long and troublesome due to the country's main problems of demographic changes dominated by the negative rate of population increase, migration from the villages towards the towns and from the remote areas towards the capital, bad re-urbanization and overpopulation leading to disorganized and uncontrolled development, but most of all due to high levels of corruption, scarce social services, high rates of criminality and unemployment, as well as lack of cohesion among public authorities.[3]

However, the Republic of Albania recently started trying to overcome its social, political and economic barriers thanks to the decisive support of the European Union in the wider context of its neighborhood and security policy in the Balkans.

To this respect, a turning point is undoubtedly represented by the Albania's entry into the Stabilization and Association Process (SAP) as a potential candidate country for integration into the European Union, with the signature of the Stabilization and Association Agreement (SAA) with the EU and its Member States dated June 2006.[4]

As a consequence of the SAP, in the period 2000–2006 Albania benefited from the EU CARDS programme, a typical economic and financial aid programme belonging to the SAP EU policy, replaced from 2007 by the similar EU Instrument for Pre-Accession Assistance (IPA), covering the period 2007–2013.[5]

Needless to say that the involvement in the SAP represents a very interesting opportunity of political and economic growth for the Republic of Albania and, at the same time, it also strongly enhances its chances of becoming an official EU membership candidate.

However, it cannot be underestimated that, to this end, the Country is called for setting and implementing a very committing and challenging path of sectoral reforms, periodically monitored by the EU Commission mainly through the Annual Progress Report tool.

In fact, it has to be noted that the SAA is a cross sectoral Agreement, involving political, economic, commercial, social, environmental, justice and home affairs aspects related to the EU policy, to be implemented by Albania.

---

[3] See The Government of Albania, 2005 *Removing of Administrative Barriers: Ongoing Progress to Improve the Business Climate*, Report of the Ministry of Economy. For progresses of the Republic of Albania in the Millennium Development Goals achievement, see www.undp.org

[4] See EC Decision 2006/54, *EC Official Journal* L 35 7/02/2006. The political relationship between the EC and Albania begun with a Commercial and Economic Agreement signed by the two Parties in 1992, followed by the Stabilization and Association Process (SAP) launched in 1999 by the EU involving, among others, five South-East European Countries including Albania. In June 2000, the European Council of Santa Maria de-Feira, declared that all the countries involved in the SAP are to be considered as "EU potential candidates". In 2003 negotiations for the conclusion of the SAA started and the Thessaloniki European Council of 2005 released some positive declarations related to the possible future chances of integration between the EC and the Western Balkans, lately confirmed as a high priority goal of the EU integration policy. Eventually, the above described process culminated in 2006 with the ratification of the SAA between EC and Republic of Albania.

[5] Although the Republic of Albania GDP has reached a 6% growth, consolidated in the past 5 years, data reported by the Bank of Albania show that in 2007 the country's GDP per capita stood at USD 3.256 with a 13.7% unemployment rate. These figures reveal that Albania remains one of poorest European countries, with a 18.5% rate of population still living in conditions of poverty. Therefore it will be of foremost importance for the country to take the opportunity offered by the EU financial aid.

Among the different chapters of the SAA, important steps have been taken in the environmental field, firstly in the approximation process,[6] secondly as part of the implementation of the sectoral policies[7] requiring the development and strengthening of the cooperation between Albania and the EU Member States for fighting environmental degradation, with the ultimate aim of promoting sustainable development.

5.2 The Republic of Albania and the Kyoto Protocol

One of the most remarkable successes of the Republic of Albania in implementing its commitments in the environmental and sustainable development fields, towards both the International and EU community, is the UNFCCC ratification, which took place in 1994, with the status of Non Annex I Country.

Later on, in December 2004, the country completed the process of adhesion to the international climate change legislative framework with the Kyoto Protocol (KP) ratification.[8]

Notably, the Ministry for Environment, Forests and Water Administration of Albania (MEFWA) is responsible for the implementation of the UNFCCC and the Kyoto Protocol.

As a Non Annex I Party, Albania fulfilled its communication and information commitments foreseen in article 4 of the UNFCCC and 10 of the Kyoto Protocol, inter alia by officially submitting its First National Communication to the Secretariat of the Convention in September 2002 and presenting it at the New Delhi COP/MOP 8 of November 2002.

This First Communication has been developed with the financial support of the Global Environmental Facility (GEF), as allowed by article 3(3) of the UNFCCC and provides information on different issues such as: national greenhouse gas inventory, GHG abatement analysis, climate change National Action Plans, public awareness raising and trainings and, finally, conclusions on national climate change problems, constraints and needs.[9]

The Second National Communication is still under preparation and is expected to be submitted within 2009, in the framework of the UNDP-GEF programme *Building Capacity to Access Carbon Finance in Albania*.

The development of this Second Communication is proving to be very challenging and difficult, mainly due to the current lack of a comprehensive national policy, in Albania, to address climate change.

---

[6] Chapter VI, *Approximation and implementation of legislation, rules of competition*, article 70-3.

[7] Chapter VIII, article 108 of SAA *Environment*.

[8] Albania ratified the Kyoto Protocol with Law no. 9334 *On Adhering of the Republic of Albania to the Kyoto Protocol* dated 16 December 2004.

[9] The Republic of Albania First National Communication to the UNFCCC Secretariat is available at www.unfccc.int/national_reports/non-annex_i_natcom/items/2979.php.

It has to be noted that, despite the fact that the country has adopted several legislative and non legislative acts related to climate change issues,[10] including the National Climate Change Action Plan identifying a set of priorities to integrate climate change concerns into other sectoral Action Plans, such legal acts revealed to be rather simple *attempts* to establish an effective National Climate Change Policy, still in need of improvement, streamlining and strengthening to make them more coherent and consistent.

To this end, in recent years the Republic of Albania established a strong network of international cooperation relations aiming at receiving support for the UNFCCC and the Kyoto Protocol implementation.

In this framework, one of the most remarkable initiative has been taken in May 2005, when the MEFWA signed a Memorandum of Understanding (MoU) with the Italian Ministry for the Environment, Land and Sea (IMELS), with the twofold purpose of implementing the UNFCCC and the Kyoto Protocol by supporting the establishment of a local permanent authority competent for such an implementation, the so called Designated National Authority (DNA) and, consequently, by carrying out all the activities related to the realization of CDM projects in the country.

It is self-evident that the Italo-Albanian MoU grounds on the shared, remarkable, ultimate objective of sustainable development achievement.[11]

5.3 CDM and DNA in the Republic of Albania: An Introduction

Due to its Non Annex I Country status, Albania has no commitments to greenhouse gases emission reductions in its territory and, notably, as envisaged by article 12 of the Kyoto Protocol, can better reach sustainable development by benefiting from the Annex I Countries technology, capital and expertise transfer realized through the implementation of CDM projects.

Indeed, the *ratio* and the spirit of the Italian–Albanian MoU cited in the previous section is exactly oriented towards the general objective of UNFCCC and Kyoto

[10] See the Law No. 8934 of 5 September 2002 on "Environmental Protection" as amended; the Inter-sectoral Strategy for Environment, adopted by the DCM No. 847 of 29 November 2007, which is supported by the Action Plan and Strategy for Biodiversity Protection, the Strategy for the Development of Forestry and Pastures, and the Urban Waste Management Plan; the Energy Strategy, the sectoral Strategy for Agriculture and Food adopted by DCM No. 924 dated 14 November 2007, DCM No. 34 of 28 January 2002 "On the approval of National Action Plan for Environment", DCM No. 577 of 5 September 2007 "On some amendments to the DCM No. 463 dated 5.7.2006 "On the adoption of the National Plan for the implementation of SAA".; The National Strategy for Development and Integration (NSDI) 2007–2013, approved by the Council of Ministers on 12 March 2008.

[11] More details on the Italo-Albanian MoU may be found on the IMELS official web site www.minambiente.it.

Protocol implementation, with a sharper focus on the specific target of sustainable development goal achievement.

More in detail, the cooperation between the two countries, both parties to the UNFCCC and the Kyoto Protocol but with a different status, focused so far on some relevant key priorities, namely: technical and financial assistance for CDM identification and development, legal support for the implementation of the UNFCCC and the Kyoto Protocol implementation, legal support for the relevant EU environmental acquis approximation, capacity building, raising awareness activities and legal and technical assistance for CDM projects implementation.

Among the above mentioned activities performed under the Italian assistance, the ones related to the CDM projects identification and to the legal assistance for the institutional and legislative building pertaining to the UNFCCC and the KP may be considered as milestones achievements.

The first one is in particular represented by the CDM projects portfolio identified by the country with the IMELS legal and technical support,[12] while the second one is represented by the IMELS legal support for the establishment of the Republic of Albania DNA.[13]

5.4 Establishing the DNA in the Republic of Albania under the Italo-Albanian MoU

The activities related to the legal assistance for the DNA establishment, foreseen in the MoU signed between Italy and Albania in 2005, started in late 2005 by first of all assessing the Albanian legislative, regulatory and institutional gaps and needs for the UNFCCC and KP full implementation.

These activities covered the period 2006–early 2007, when IMELS provided MEFWA with all the necessary data and studies on the role, competences and possible models of DNA and actively supported the local legislative reforms necessary to prepare the background for the DNA establishment, always taking into account the potentials and the objective human and financial resources of the country.

Finally, throughout the second part of 2007 and 2008 the activities culminated in the drafting and consequent submission of a legal act for the DNA establishment, eventually endorsed and finalized by the Decision of the Council of Ministers (DCM) number 1553, dated 26 November 2008.[14]

---

[12] The CDM portfolio is available on www.ambientebalcani.it, on www.minambiente.it and on www.moe.gov.al.

[13] It has to be mentioned that in June 2005 the MEFWA appointed the Climate Change Unit, established within MEFWA itself by a GEF-UNDP programme, as UNFCCC Focal Point, temporary serving as DNA until the establishment of a more stable and stronger authority serving as DNA.

[14] Decision of CoM No. 1553, of 26 November 2008 *On the Establishment of the DNA of CDM, in the framework of the implementations of KP commitments* in *Official Journal 181:* 8996.

The decision cited above has been completed by an order of the Albanian Minister of Environment formally appointing the members of the Albanian DNA. The last by-legal act adopted pursuant to the DCM for the DNA establishment is the Regulation "On the rules and procedures for assessment and adoption of the CDM Projects".[15]

As a result of this long and engaging process, and according to the legislative framework cited so far, the newly established Albanian DNA is a specialized body of environmental experts competent for CDM assessment, established within MEFWA, and consisting of two units: the DNA Committee, made of seven members, and the DNA Technical Secretariat, composed of four members.

5.5 The Albanian DNA: Structure, Competences and Procedures for CDM Assessment

The two units composing the DNA, Committee and Secretariat, cited above, have different competences but fully cooperate and integrate their tasks and roles in the overall process of CDM projects assessment and approval.

More in detail, according to the legislative framework designed under the Italo-Albanian cooperation, the DNA Committee shall be competent for coordinating the activities belonging to the implementation of the UNFCCC and the Kyoto Protocol, for supervising the activities of the Technical Secretariat and, most of all, for taking the final decision in the CDM approval process, taking into account the preliminary evaluations performed by the Technical Secretariat.

On the other hand, the Technical Secretariat shall be competent for receiving the applications of the CDM project proponents, carrying out all the necessary duties for its assessment with special regard to ensuring the compliance with the national relevant legislation and, fundamentally, making the preliminary screening of the applications, both under a formal and a substantive perspective, in order to draft a reasoned opinion to be forwarded to the committee that will take the final decision on the project application.

The entire procedure for CDM evaluation, requiring the involvement of the two DNA units in their respective competences, is developed throughout two main phases, the first one consisting in a preliminary screening of the application submitted by the project proponent, and the second one related to a more in depth examination of the project proposal, leading to the possible final approval of it.

The preliminary evaluation is carried out by the Technical Secretariat on the Project Idea Note (PIN) submitted by the applicant and has to be performed within 25 days from the submission of the PIN.

[15] Regulation No. 1, of 25 March 2009 *On the rules and procedures for assessment and adoption of the CDM Projects*.

If deemed necessary by the DNA Committee because of the particular nature of the project, this phase may see the involvement of some relevant line ministries[16] called for expressing their opinion, in order to ensure the provision of an adequate expertise concurring to endorse the final decision.

In case this first stage ends with a positive evaluation, the DNA Committee, always taking into full account the Technical Secretariat preliminary opinions, issues the Letter of No Objection, to be signed by the Ministry of MEFWA, opening the doors to the second part of the CDM evaluation procedure.

This consists of, and starts with, the submission by the project proponent of a more detailed and complete document, namely the Project Design Document (PDD), to be evaluated by the Technical Secretariat, and if necessary by other line ministries, with the aim of providing the committee with a final reliable and comprehensive opinion on the project.

In fact, the committee shall receive a final opinion by the Secretariat within 30 days from the PDD submission, and has to take a final decision building on the opinion forwarded by the latter.

The final decision, whether of approval (technically represented by a Letter of Approval) or refusal, is adopted by the committee upon the outcomes of the screenings and the opinions delivered by the Technical Secretariat, in cooperation with the line ministries involved, in the previous stages of the evaluation process.

The letter has to be signed by the MEFWA Minister, who finally endorses the DNA decisions and, in case of rejection, has to state the reasons of refusal plus the suggestions for improving the PDD in case the applicant decides to file again the request for approval for the same type of CDM project.

As already mentioned at the end of the previous section, this legislative and regulatory framework, already representing a fundamental requisite for the implementation of CDM projects in Albania, has been very recently integrated by the above-mentioned regulation on the rules and procedures for CDM assessment. It concerns the rules and procedures to be followed by the experts of the newly established DNA for the assessment of the CDM projects through the PINs and PDDs. Furthermore, this regulation provides the exact rules addressing the project developers on how to file an application for a CDM project in Albania, as well as the necessary forms of PINs and PDDs. The regulation provides as well the criteria for sustainable development which should be taken into consideration during the assessment process.

These are divided into the traditional three categories (environmental, economic and social criteria) plus the one related to the National Policy criteria. Each of the sustainable development criteria categories is assigned a "weight" depending on its contribution to the achievement of sustainable development.

Moreover, the following relevant sub-criteria and related scores for each of the four groups are identified:

[16] According to the specific type of CDM project, the line ministries may be the Ministries of Infrastructures, Energy, Trade and Economy, Finance and others.

- Environmental criteria (40%)
  - Contribution to mitigation of climate change
  - Other environmental benefits, e.g. improvement of air, water, and soil quality, biodiversity protection, forest management, etc.
  - Manner of utilization of natural resources and conservation of local resources
- Economic criteria (30%)
  - Financial returns to project entity(s)
  - Transfer of new technology, including renewable and energy-saving
  - Attraction of foreign investments
- Social criteria (15%)
  - Poverty alleviation
  - Capacity development for stakeholders
  - Public consultations
  - Employment
- National policy criteria (15%)
- Contribution to and compatibility with governmental policies and priorities at national/regional/sectoral levels

Finally, the respective forms of PIN, letter of no objection and letter of approval have been included in the Annex to the Regulation.

5.6 Making the Albanian DNA Fully Operational: Capacity Building Under the Italo-Albanian Cooperation

The activities related to the legal assistance for the creation of the DNA in the Republic of Albania, undertaken under the umbrella of the Italian cooperation, aimed firstly at legislative and institutional building and then, once these major preliminary objectives have been accomplished, also aimed at providing the newly established DNA the proper expertise for carrying out its tasks.

To this end, starting from April 2009 the Albanian DNA has been benefiting from a high level tailor made capacity building programme on the UNFCCC and the KP, with the purpose of training the Albanian DNA under both a technical and legal perspective and providing its members with the adequate, full expertise and necessary tools to autonomously receive and assess the CDM projects applications.

5.7 Conclusion

The UNFCCC and the KP implementation gained foremost importance among the priorities of both developed and developing countries.

Indeed, by means of the flexible mechanisms envisaged therein, particularly the CDM, the countries may benefit from interesting and appealing tools for economic and social growth, without compromising the environment.

For this reason it is remarkable that two countries with different status under the UNFCCC like Italy and Albania are Parties to a MoU finding a common ground of cooperation with the shared aim of achieving sustainable development under the climate change legislative regime umbrella.

The path characterizing such cooperation from the date of signature of the MoU, in 2005, has been engaging and full of obstacles to overcome and still poses great challenges.

However, both Parties strongly believed in it and Albania progressively showed an increasing sensitivity and active attitude towards the development of its climate change policy, and is currently on its way to improve its legislative and institutional resources.

On the other hand, the "package" of assistance offered by IMELS from 2005 onwards has been particularly appealing, comprehensive and tailor-made, aiming at providing both the legal and the technical support to MEFWA and to the entire country, always taking into utmost account the goal of sustainable development achievement.

To this respect, IMELS has always taken into foremost consideration the necessity of providing Albania with the adequate tools to be progressively autonomous in CDM projects assessment and thus to progress in its economical, social and legislative growth.[17]

After the DNA establishment and training, Albania is now at a turning point, where it will be fundamental to continue with its structural, legislative and institutional reforms aiming at improving the country's resources and, most of all, to overcome the barriers still affecting it and representing black spots taking Albania far from the UN targets, worldwide recognized as fundamental indicators of a country's growth.[18]

The path is still demanding, but the final reward is particularly appealing, considering the improved role that the country may gain in the international arena and the strong conditionality linking the national reforms with the EU accession.

In this perspective, Albania may receive fruitful support by joining international partnerships like the one with IMELS, particularly in interdisciplinary matters, such as the climate change field.

[17] It has to be mentioned that in addition to the full implementation of UNFCCC and the KP, the establishment of the country's climate change policy requires the development of other relevant and related legislation, that in the case of Albania is mainly represented by the IPPC, EIA, SEA, renewable energy and energy efficiency legislation.

[18] See note 3.

Chapter 6
DNAs Experiences in the Western Balkans: The Republic of Macedonia*

Francesca Romanin Jacur and Julia Brsakoska Bazerkoska

6.1 Introduction

The Former Yugoslav Republic of Macedonia (hereinafter, Republic of Macedonia) was established as an independent State with the Parliamentary Declaration of Sovereignty of 25 January 1991 followed by the Referendum on a Sovereign State which took place in September 1991. Since the election held in 1990, the Republic of Macedonia is a parliamentary democracy. The Constitution was adopted in November 1991.

The Republic of Macedonia has a population of about 2 million people and its territory covers an area of about 25,700 km².

The Republic of Macedonia applied for membership to the European Union and in 2005, the European Council granted to the country the status of candidate country.[1]

In view of the accession to the EU, the Republic of Macedonia needs to meet the requirements as identified in the European Partnership.[2] In particular, economic development of the country is stimulated through commercial relations with EC Member States and special attention is also devoted to the support to the democracy and the sound development of the political and administrative institutions.

F. Romanin Jacur
Member of the Environmental Legal Team, University of Siena

J. Brsakoska Bazerkoska
Former Member of the Environmental Legal Team, University of Siena

* On the issue of the use of the name republic of macedonia and the pending controusy under international law see *supra* in this volume, note 1 in the International

[1] European Council Decision of 17 December 2005.

[2] The European Partnership adopted by the Council on 30 January 2006 on the basis of a proposal by the Commission is an instrument of the stabilisation and association process. It aims at supporting the country by identifying areas where support is a priority, and provides the tools to allow the Republic of Macedonia to meet its goals in view of the future EU membership.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_6,

6.2 Measures Implementing the Climate Change Regime in the Republic of Macedonia

The Republic of Macedonia has ratified the United Nations Framework Convention on Climate Change (UNFCCC) with the Law on ratification of 28 April 1998.[3]

Not being considered as an industrialized country, the Republic of Macedonia commitment to respond to climate change is limited to (1) the establishment of an inventory of greenhouse gas (GHG) emissions and (2) national reporting on the actions taken in compliance with the Convention.

To this aim, according to the UNFCCC, each State should establish a focal point, which serves as the competent entity in charge of implementing and monitoring these obligations. The Ministry of Environment and Physical Planning (MoEPP) has been designated as the National Focal Point of the Republic of Macedonia to the UNFCCC. Other relevant organs established to deal with climate change issues are the Climate Change Project Office and the National Climate Change Committee. The latter is an advisory body responsible for overseeing the national policy and the process of implementation of the UNFCCC at the national level, as well as for developing negotiating positions and strategies for the Government of Macedonia for meetings of the Conference of the Parties (COP). This body is composed of thirteen members representing the relevant governmental agencies, as well as other stakeholders, such as NGOs, private entities and academia and is chaired by a representative of the Macedonian Academy of Science and Arts.[4]

One of the initial duties of these organs has been to draft the First National Communication on Climate Change, a document in which Macedonia submitted information on activities undertaken to address climate change. This document was finalised in March 2003 and has been submitted and approved by the COP, according to the Convention rules.[5] Recently, in December 2008, also the Second National Communication has been officially submitted to the competent organs of the UNFCCC.[6]

As for the Kyoto Protocol, the Republic of Macedonia deposited its instruments of accession to the Protocol on 18 November 2004, and is therefore a Party to this treaty since its entry into force, which took place the 16 February 2005.[7] The MoEPP coordinated all activities related to the ratification of the Protocol and was engaged in ensuring the appropriate level of consultations among the stakeholders, in particular with the aim of raising public awareness on climate change issues.

---

[3] Official Gazette of the Republic of Macedonia, No. 61/1997.

[4] See second National Communication, p. 27.

[5] See article 12 of the UNFCCC.

[6] See http://unfccc.int/resource/docs/natc/macnc2.pdf (last visited in February 2009).

[7] The Kyoto Protocol is implemented in the Republic of Macedonia through the Law on ratification of the Kyoto Protocol to the UNFCCC adopted by the Assembly in 2004.

The Kyoto Protocol provides for differentiated obligations for State Parties: it sets quantified emission reduction targets for industrialized countries, listed in Annex I, while for other countries not listed in this Annex, the so-called "non-Annex I countries", envisages procedural obligations, including the creation of appropriate GHG inventory and monitoring systems. Another important commitment for non-Annex I countries willing to participate in the Clean Development Mechanism (CDM), as host country of CDM projects, is the creation of a Designated National Authority (DNA), an administrative organ in charge of approving CDM projects after verifying their compliance with relevant rules, and in particular with national requirements.

Since the ratification of the UNFCCC and the Kyoto Protocol, the Republic of Macedonia started working on the enhancement of its administrative structure and on the strengthening of capacities for the implementation of the Convention and the Protocol. In fact, the participation to the climate change regime entails the need of amending parts of the existing legislation and of introducing new specific procedural as well as substantive provisions in order to ensure an effective implementation of climate change obligations by the Republic of Macedonia.

6.3 The DNA of the Republic of Macedonia

6.3.1 The "Single Ministry" Structure

The Republic of Macedonia is a small country with limited resources. Due to its small size the projected CDM potential may be relatively low compared with bigger countries with large industry and energy sectors. Given these circumstances, models that rely on the existing infrastructure, are more suitable for the institutional set-up of the DNA in the Republic of Macedonia. As a result, the establishment of the Macedonian DNA did not require the opening of an entirely new agency for CDM project review (Fig. 6.1).

Macedonia's DNA is located within the MoEPP according to a "Single Ministry Model." According to this model, the MoEPP has final legal authority on project review and approval, and is entitled to sign the host country letter of approval. The MoEPP is also authorized to enter into special CDM project agreements with potential investor countries.

The DNA Secretariat is housed by the MoEPP, within the Department of Sustainable Development. The decision of setting the institutional basis of the DNA within the MoEPP was taken mainly because this location can provide the best support for the entity in the long-term: staff expertise already exists and may be used as a permanent support for the DNA.

The DNA Secretariat acts as a contact point to the public, including project developers, validators, potential investors, and the CDM Executive Board. In addition, the Secretariat is responsible for internal review of CDM projects, coordination of expert review by other relevant ministries and drafting of the decision letter. The Minister of the MoEPP is the final decision maker and provides the signature

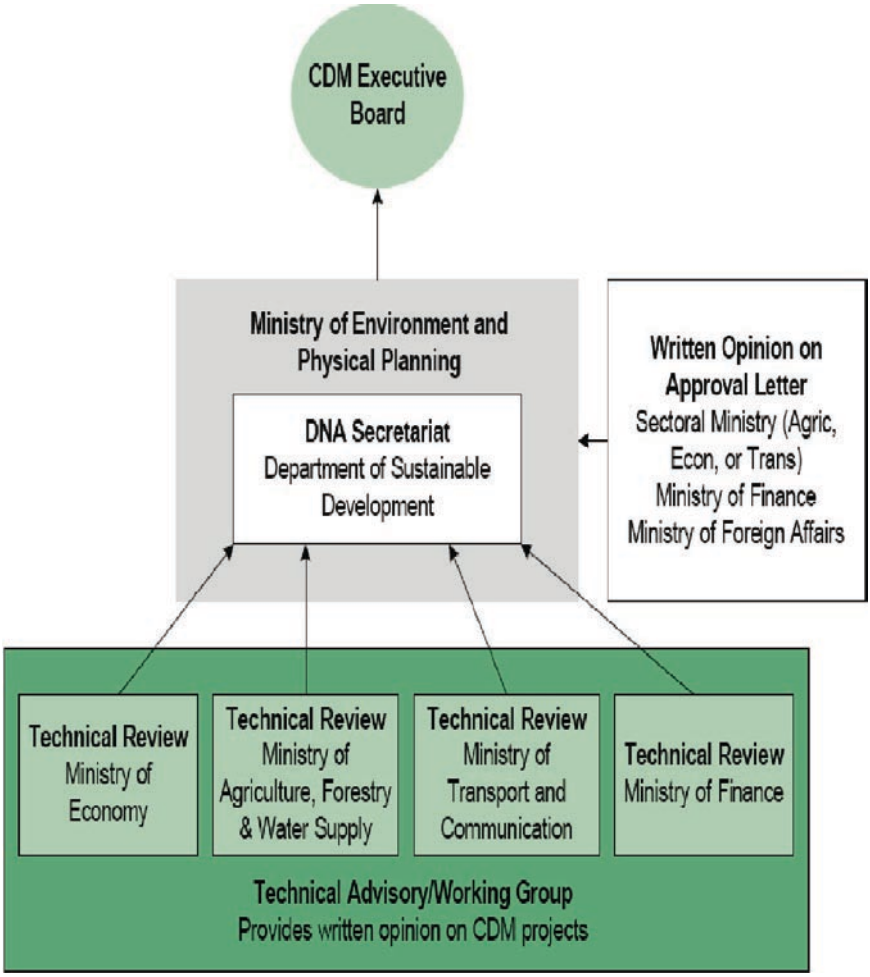

Fig. 6.1 DNA structure in Macedonia (Source: National Strategy for CDM)

for any endorsement and approval letters. The other relevant ministries are involved in the project review through a two-step review process.

6.3.2 The Legal Basis

The Law on Environment,[8] representing the framework law regulating all environmental issues, has been the main legal basis for the establishment of the DNA within the MoEPP. In fact, climate change issues have been incorporated in the

[8] Official Gazette of the Republic of Macedonia, No. 24/2007.

Law on Environment, which includes provisions relating to the preparation of inventories of GHG emissions and removals by sinks, action plans on measures and activities to reduce GHG emissions and to mitigate adverse impacts of climate change. Some specific norms on CDM were added to the Law on Environment with the latest changes made in 2007. Furthermore, in the establishment of the DNA, a range of legal acts with potential relevance for CDM project development and host country approval were reviewed as well: Law on Waste Management,[9] Law on Waters,[10] Law on Energy,[11] Law on Ambient Air Quality,[12] Foreign Trade Law,[13] Profit Tax Law[14] and Law on Value Added Tax.[15]

The above mentioned broad legal framework provides an indication to the relevant State departments which are involved in the evaluation of the CDM projects proposals. In addition to that, in 2008, it has been approved the National Strategy for CDM for the first commitment period 2008–2012.[16] However, there are many legal acts that still need to be enacted in the future in order to complete the above mentioned legislation for hosting CDM projects in Macedonia.

6.3.3 The Mandate

The main responsibilities of the DNA include:

1. Establishing national rules for eligibility, submission, and approval of CDM projects
2. Ensuring compliance of CDM projects with national sustainable development criteria
3. Certifying compliance of CDM projects with other country-specific eligibility criteria, such as the Environmental Impact Assessment (EIA)
4. Issuing host country approval letter for CDM projects, including certification that the project is undertaken on a voluntary basis

The DNA may also get involved in project outreach, training activities for potential project developers, creation of a database of potential CDM project opportunities and promotional activities targeting international carbon investors and funds.

---

[9] Official Gazette of the Republic of Macedonia, No. 68/2004.

[10] Official Gazette of the Republic of Macedonia, No. 4/1998.

[11] Official Gazette of the Republic of Macedonia, No. 63/2006.

[12] Official Gazette of the Republic of Macedonia, No. 67/2004.

[13] Official Gazette of the Republic of Macedonia, No. 45/2002.

[14] Official Gazette of the Republic of Macedonia, No. 80/1993.

[15] Official Gazette of the Republic of Macedonia, No. 44/1999.

[16] The National strategy for CDM (2008) is available on the website www.undp.org.mk

The DNA is strictly a regulatory unit. As such, it cannot initiate projects as this could lead to conflict of interest with its role as a regulator, entitled to grant approvals for CDM projects. In fact, the assessment of a project's contribution to sustainable development objectives should be made on an impartial and transparent basis. By approving and facilitating the development of CDM projects in the host country, the DNA may contribute to the enhancement of foreign investments in the country, which may in turn lead to increased job opportunities and economic growth.

6.3.4 The Procedures for Approval of CDM Projects

Specific procedures are provided for CDM project approval in Macedonia. Since CDM projects involve various economic sectors of the society, there is a need for the involvement of other relevant ministries and institutions in the country, besides the MoEPP, when deciding on these kind of projects.

The National Strategy for CDM, adopted by the Macedonian Government in 2007 as one of the priorities in the country development, provides for a two step review process for the approval of CDM projects. The review and approval procedure to be followed by the Macedonian DNA, in fact, may be divided in two phases: a first one takes place under the aegis of the Technical Advisory Group, while the second involves a dialogue among the relevant ministries, which ends with the issuance of the final letter of approval or of rejection.

(a) Phase 1: CDM Project Review by the Technical Advisory Group

During the first phase, the project developers submits to the DNA a short Project Idea Note (PIN) for an initial feedback. As a response to their request, they receive from the DNA an evaluation of their project, often in the form of a Letter of Endorsement, before the complete PDD is submitted for final approval. This step allows project developers to identify potential conflicts with the project approval criteria and other government policies.[17]

The DNA Secretariat sends the CDM proposal (i.e., PIN and PDD) to a Technical Advisory Group for a technical review. This Advisory Group consists of appointed experts from the MoEPP, the Ministry of Finance, and relevant sectoral ministries, such as the Ministry of Economy, the Ministry of Agriculture, Forestry and Water Supply, and the Ministry of Transport and Communication, depending on the project that is under evaluation.

The feedback from the Ministry of Finance is important to understand any financial, taxation, or property rights issues that may prevent the government from accepting the project proposal. Each ministry called to review the submission should provide a written opinion on the project, using standard review template and

[17]Some investors require a Letter of Endorsement from the host country at an early stage to indicate that the Government has been consulted on the project and has, in principle, no objections to the project.

Table 6.1 Steps for CDM approval

Step	Time frame	Voluntary/Mandatory
Step I: Initial screening and endorsement of the Project Idea Note(PIN)	15 Working days	Voluntary
– Review of the PIN	10	
– Issuance of Letter of Endorsement	5	
Step II: Final review and approval/rejection of the Project Design Document(PDD)	30 Working days	Mandatory
– Initial screening of PDD	2	
– Review by Technical Advisory Group	10	
– Technical review summary and recommendation to the Minister of MoEPP	4	
– Decision by the Minister of the MoEPP	2	
– Draft Letter of Approval	3	
– Inter-ministerial Review of approval/ rejection letter	5	
– Final approval/rejection letter	4	

(Source: National Strategy for CDM)

time frame (Table 6.1). Based on the internal MoEPP review and the inter-ministerial experts reviews, the DNA Secretariat drafts a recommendation to the Minister of MoEPP who then takes the final decision on the project. This draft recommendation highlights the issues raised in the "opinion documents" and suggests a solution. Finally, following the Minister's decision, the DNA Secretariat drafts the approval/ rejection letter.

(b) Phase 2: Review of Host Country Approval Letter by the Relevant Ministers

As part of the second stage of the inter-ministerial review process, depending on the type of project and the relevance of the institution, the draft host country letter is sent for review by the DNA Secretariat to the appropriate ministries (Ministry of Economy, Ministry of Agriculture, Forestry and Water Supply, Ministry of Transport and Communication), to the Ministry of Finance and the Ministry of Foreign Affairs. These ministries respond in the form of a written opinion, which should then be taken into account by the MoEPP in the preparation of the final decision letter.

6.4 The Sustainable Development Policy in the Republic of Macedonia and Its Relation with the CDM Approval

The core element of sustainable development consists in the integration of economic, social and environmental policies with the view of strengthening synergies among them.

The CDM has a central role in the integration between environmental matters, including climate change issues, on the one side, and sustainable development considerations, on the other side. In fact, CDM projects may jointly pursue the two-fold

aim of meeting the expectations of developed countries willing to reach their carbon abatement goals and of contributing effectively to meet local sustainable development objectives in developing countries.

Consequently, national authorities of countries hosting CDM projects should act as catalysts for this sustainable development tool. In other terms, they should support those CDM projects that contribute more effectively to their local sustainable development objectives.

For this reason, the identification of sustainable development criteria is an important issue to be tackled by host countries. However, while the discretionary power of national authorities regarding sustainable development requirements is certainly a positive element from a developing country perspective, this freedom may also constitute a potential threat to the success of the CDM. In fact, the lack of appropriate guidelines and of minimum standards at the international level, may lead certain host countries to choose too permissive criteria with regard to CDM implementation in order to attract more investors, at the expenses of the environmental integrity of the CDM.

In order to identify the links between CDM projects and national development goals, it is necessary to consider policy priorities of the Republic of Macedonia which have been defined in the National Strategy for Sustainable Development.

The principles of sustainable development are covered by the Constitution of the country as well as by the Law on Environment.

The development of a National Strategy for Sustainable Development has been identified as one of the priorities of the Government of the Republic of Macedonia. The preparation of the National Strategy for Sustainable Development is in a final stage and should be adopted by the Government of the Republic of Macedonia within 2009.[18]

The National Strategy should be used as a basis by the DNA when developing specific criteria that measure the contribution to sustainable development of CDM projects.

Among the key priorities identified so far by the Draft National Strategy to make the Republic of Macedonia more sustainable, EU membership is of paramount importance.[19]

---

[18] A complete draft of the National Strategy has been issued in February 2009 and it is available on the website www.nssd.com.mk. The development of the Strategy is supported by the Swedish Development Agency as a cooperation project with the Ministry of Environment and Physical Planning.

[19] The concept of sustainable development is one of the main goals of European integration. In December 2005, the Republic of Macedonia was awarded candidate status for EU membership and the country is thus obliged to prepare a National Strategy for Sustainable Development. The overarching and crucial precondition for making the Republic of Macedonia sustainable is EU membership. There is firm belief that EU membership will strongly support sustainable development in the Republic of Macedonia.

Furthermore, the development of effective climate change and energy policies in line with the European strategy for sustainable development is a key challenge for the country.

The National Strategy aims at the fulfillment of the obligations taken by the Republic of Macedonia at international and EU level, but its primary purpose is to provide an effective framework for sustainable development that, through the review of existing policies and sectoral strategies, may offer a practical guideline for the public and private sectors and may encourage the increase of domestic and foreign investments.

According to the Draft National Strategy, an important starting point for making the Republic of Macedonia sustainable is to set up the already planned National Council for Sustainable Development (NCSD) with a strong and efficient Secretariat, which later could be developed into a proper Agency for Sustainable Development. The Secretariat should be provided with governmental executive power. To this effect, the NCSD should be chaired by the Prime Minister and should include all relevant ministries.

The Agency for Sustainable Development should be established as a merger and further development of existing agencies as the Agency for Spatial Planning, the Agency for Promotion of Entrepreneurship, the Agency for Energy Efficiency, the Agency for Sport and Youth presently dealing with the sustainable development issue.

Hosting CDM projects represents an opportunity for Macedonia to facilitate market transformation towards a less greenhouse gas intensive economic system and a more sustainable development future. Each CDM project will be reviewed by the DNA against its compliance with national sustainable development goals and objectives. In particular, each proposed CDM project should:

1. Provide a net environmental benefit to the Republic of Macedonia or to the community in which it is located (reduced GHG emissions, air quality, waste reductions), or at least not result in a net adverse environmental impact.
2. Deliver a net contribution to economic development (including the transfer of more efficient and environmentally sound technologies, employment, decrease of the dependence on energy imports, positive financial flows), or at least not result in net economic loss.
3. Contribute to an improvement in social conditions (poverty alleviation, more equitable distribution of benefits). In particular, it should not discriminate against a specific community or result in a less equitable distribution of rights or benefits.

In order to assess coordination of CDM projects with these principles, the Government of Macedonia should develop and approve a set of specific criteria and indicators to be used by the DNA to measure individual projects' contribution to sustainable development and prioritize them for Annex I parties interested to invest in CDM projects in Macedonia.

6.5 Conclusion

Being aware of the importance of addressing climate change and taking into account the opportunities offered by the development of CDM projects, Macedonia has been the first country of the Western Balkan region to ratify the Kyoto Protocol in 2004 and is at an advanced phase in its implementation. This implementation process is benefiting from an institutional cooperation program between Italy and the Republic of Macedonia, which started in August 2005. The cooperation aims at sharing experiences in the areas of Environment and Sustainable Development, and is focused, in particular, on the development of the legislative and institutional framework necessary for the Kyoto Protocol implementation, on legal and technical assistance for DNA in Republic of Macedonia as well as on capacity building for local project owners.

Within the cooperation with the Italian Ministry for Environment, Land and Sea, by the end of 2008, two Calls for Expression of Interest were published for the preparation of feasibility studies and PDDs for potential emission reduction projects under the CDM in the following sectors: solid municipal waste, waste water treatment, renewable energy, energy efficiency and fuel switch.

By the end of 2008, the Macedonian DNA received three Project Idea Notes and gave positive answer to all of them, through the first phase of issuing the Letter of Endorsement. Furthermore, the DNA received two PDDs for evaluation and followed the established procedure when issuing the Letter of Approval.

Notwithstanding the small number of the PDDs evaluated by now, the Macedonian DNA continues its work in daily contact with the stakeholders and site owners, as well as with potential investors, promoting the development of CDM projects in the Republic of Macedonia.

Chapter 7
DNAs Experiences in the Western Balkans: The Republic of Montenegro*

Olivera Kujundzic and Emanuela Orlando

7.1 Introduction

Montenegro is a small country, which occupies an area of about 14,000 km^2 and hosts approximately 700,000 inhabitants. Despite its relatively small territory, the country is comparatively rich in natural beauties and historical sites which make Montenegro one of the most ecologically and culturally attractive regions in the Balkans and in Europe.

Proclaiming itself as an "ecological state" in 1991,[1] the country showed its strong political will towards active participation in solving global ecological problems. Nevertheless, during the last very turbulent period it changed its status several times before regaining its independence in 2006.

Recently after its independence, the new state reaffirmed its commitment to the protection of the environment and the fight against climate change. In this perspective, Montenegro ratified the Kyoto Protocol and started to actively take the necessary actions for its implementation. Within the framework of the international cooperation agreement between the Italian Ministry for the Environment, Land and Sea (IMELS) and the Montenegrin Ministry of Tourism and Environmental Protection (from June 2009 it was split into two ministries: Ministry for Spatial Planning and Environmental Protection and Ministry of Tourism), Italy has provided legal and technical assistance for the implementation of the United Nations Framework Convention and of the Kyoto Protocol in Montenegro.

The process of establishment for the Montenegrin DNA passed through several phases. The present contribution focuses on the establishment and explains the current situation relating to the structure and functioning of the Montenegrin DNA. In particu-

O. Kujundzic
Member of the Environmental Legal Team, University of Siena

E. Orlando
Member of the Environmental Legal Team, University of Siena

* Part I of this article by O. Kujundzic, part II by E. Orlando

[1] It was officially registered by the UN Earth Summit in Rio de Janeiro, in 1992.

M. Montini (eds.), *Developing CDM Projects in the Western Balkans: Legal and Techinical Issues compared,* DOI 10.1007/978-90-481-3392-5_7,

lar, the first part of the article gives an overview of the different phases which led to the definition of its current structure and solution, while the second part sheds more light into DNA as it stands at present.

7.2 Part I: Towards the Establishment of the DNA in Montenegro

7.2.1 Historical Background

Taking into account the relatively short period of time since its independence in 2006 and the quite complex agenda of a newly independent state, Montenegro showed its utmost commitment towards the ratification and implementation of the Kyoto Protocol. Looking at the calendar, it seems that from the entering into force of the Protocol and the establishment of the DNA, Montenegro needed just 5 months. But behind this fact there were long-term preparations which started well before the ratification of the Kyoto Protocol.

In 1991, when the Socialist Federal Republic of Yugoslavia was formally dissolved in the course of the Yugoslav wars, Montenegro stayed connected with Serbia within the Federal Republic of Yugoslavia (FRY) (1992–2003). The United Nations Framework Convention on Climate Change (UNFCCC) was ratified by FRY in that period (1997), when activities of the FRY at international level were mainly marked by UN Sanctions and international disagreement about FRY as legal successor of ex-Yugoslavia. Following the FRY re-admission to the UN in November 2000, the official date of UNFCCC ratification is 12 March 2001. In 2003 FRY was transformed into the State Union of Serbia and Montenegro.

The procedure for ratification of the Kyoto Protocol started in 2004, when a substantial part of the procedure for ratification was performed. Because of the new composition of the State Union, the Protocol needed to be ratified by both parliaments of the constitutional republics; ratification then had to be confirmed by the parliament of the "loose" confederation. The Draft Law on the Ratification of the Kyoto Protocol with justification was approved by the Government of Montenegro in February 2006, but it was not adopted by the Parliament. However, the subsequent change of the legal status of the Republic of Montenegro, as a result of its independence, significantly slowed down the process of ratification.

After the division of Serbia and Montenegro in 2006, Serbia became the legal successor of the international instruments pertaining to the Federal Republic of Yugoslavia on the basis of the Constitutional Charter of the short-lived State Union.[2] Therefore, Montenegro was not allowed an automatic succession in the status of Party to the UNFCCC. Nevertheless, rapidly after its declaration of independence made on 3 June 2006, Montenegro became an official member state of the United Nations by acclamation of the General Assembly on 28 June 2006.

[2] The State Union of Serbia and Montenegro existed from 2003 to 2006.

In its "Declaration on relations with United Nations after the referendum on state-legal status", the Government of the Republic of Montenegro expressed that it will continue to conduct and observe all signed documents of the United Nations embraced in the framework of the State Union, including the UN Framework Convention on Climate Change. The UNFCCC Secretariat considers the Convention and the Kyoto Protocol to be fully ratified on the date of depositing the instrument of accession. However, this date obviously does not coincide with the date of ratification of the instrument by the Montenegrin Parliament. Therefore, according to the records of the UNFCCC Secretariat, the instrument of ratification of the Convention was deposited on 23 October 2006 and, consequently, entered into force on 21 January 2007. As to the Kyoto Protocol, the Montenegrin Parliament ratified it on its session held on 21 March 2007, but the UNFCCC Secretariat registered 4 June 2007 as a date of deposit and 2 September 2007 as a date of entry into force of the Kyoto Protocol for Montenegro. As a result of this discrepancy, several activities and initiatives aimed at implementing the Kyoto Protocol for Montenegro started before its "official" date of entry into force.

7.2.2 The First Vision on the DNA

The process towards the establishment of the DNA of Montenegro was also partly influenced by the political changes experienced by the country on the way to its full independence.

According to article 14 of the Constitutional Charter of the State Union of Serbia and Montenegro, the Union should have been considered as a single personality under international law. Hence, Serbia and Montenegro was recognized as a single and unique international entity to the UNFCCC. Therefore, it was planned to establish the DNA by a Decision of the Council of Ministers of the State Union, and to leave its organization and operational modalities to be determined by the responsible authority at the State Union level. A single DNA for Serbia and Montenegro should have been established with the responsibility of facilitating communication between the UNFCCC Secretariat and the National Authorities (NA). The latter was to be instituted at the level of the Republic of Serbia and Republic of Montenegro respectively.

In Montenegro, an inter-ministerial Working Group was formed to act as a transitional body until the formal establishment of the NA planned within the Energy Efficiency Unit (EEU) in the Ministry for Economic Development.

The proposed model of NA was chosen taking into account the following advantages. On the one side, at the technical level, the newly formed EEU, as a permanent technical body, was considered a source of sufficient expertise at least for energy-related projects, which are the most common among CDM projects. On the other side, the Inter-Ministerial Committee was expected to provide high level political support to the planned NA. This solution was also aiming at avoiding the burden of creating new institutional structures and amending the existing legal framework.

According to this proposal, the approval procedures should have been established on a complex three-level basis (two internal according to the NA structure and an external one on the State Union level), but following the political developments

which led to division of Serbia–Montenegro, this preparatory process was abandoned without spending further efforts.

Following the independence of Montenegro and the ratification of the Kyoto Protocol, this first model was re-examined. However, since the Government of Montenegro was restructured and the Law on Ratification of the Kyoto Protocol by the Republic of Montenegro[3] prescribed that the supervision over implementation of the Law ought to be performed by the state administration body responsible for environmental protection, the old proposal resulted obsolete and inadequate and was therefore set aside.

7.2.3 The New Proposal for the DNA Structure in Montenegro

The exit from the shade of the State Union umbrella brought on the scene different issues related to the DNA establishment such as:

- Adaptation of the legal framework and rebalance of the decision-making powers
- Increase of the administrative bodies needed to deal with the numerous substantial reforms and requirements imposed by the EU integration process and other international law obligations which Montenegro faced as a new subject of international law
- Assessment of the possible number of projects that DNA could deal with
- Competitiveness at the CDM market – attractiveness to foreign investors
- Necessity of flexible and functional procedures

The new proposal was still primarily based on the "single department government" model, but included four different organizational elements:

1. DNA Committee (CD), located within the Ministry of Tourism and Environmental Protection, responsible for all DNA activities.
2. DNA Technical Secretariat (DTS), responsible for performing operational activities including technical analysis, review of project documentation, drafting DNA opinions and decisions, which shall be performed by the Environmental Protection Agency.
3. DNA Technical Working Group (DTWG), responsible for supporting the DTS on specific technical issues within the evaluation of CDM projects.
4. Inter-ministerial CDM Focal Point (ICFP), responsible for providing opinions on general or specific sector level issues.

This model kept similar bodies to those already envisaged under the previous proposal. The inter-ministerial Working Group was transformed to the Inter-ministerial CDM Focal Point. The competence of the technical body was moved from the

[3] Official Gazette of the Republic of Montenegro 17/2007.

Energy Efficiency Unit, within the Ministry for Economic Development, to the Environmental Protection Agency that was, at that period, in the phase of establishment. The DNA Committee, to be hosted within the Ministry of Tourism and Environmental Protection, was proposed as the decision-making body which, in this case, replaced the responsible authority at the State Union level. In addition, the new proposal foresaw another *ad hoc* body – the DNA Technical Working Group - whose role was to provide technical expertise related to specific CDM project proposals.

In this phase, a comprehensive study was made in order to determine the DNA structure, its roles and responsibilities, the project evaluation procedure and the sustainable development evaluation criteria and indicators according to the national sustainable development strategy of Montenegro.

Special attention was also given to the establishment of the legal framework for the DNA. In that period, the Montenegrin Ministry of Tourism and Environmental Protection prepared the new framework law on Environmental Protection by which it was also establishing the Environmental Protection Agency. It was quite a logical solution to add some provisions to this Law in order to establish or at least provide a legal basis for the establishment of the DNA.

7.2.4 The Adopted Model for the DNA Structure

During 2007, the proposed DNA model described above was discussed among different stakeholders, revised and finally simplified in order to be in compliance with the administrative framework, rules and procedures in place in Montenegro.

The DNA Committee was renamed “CDM Committee” and established within the Ministry of Tourism and Environmental Protection. Among the members of the CDM Committee there is the UNFCCC national focal point and the coordinator of the national Strategy for Sustainable Development. The minister is the president of the committee.

The DNA Technical Secretariat was renamed “Technical Operation Body”.

The DNA Technical Working Group, envisaged as an ad hoc body to be established on the “case by case” principle, did not need any special procedure, rule or establishment. The Law on Public Administration of Montenegro provides, in fact, an opportunity for the public administration bodies to appoint appropriate experts for assistance in specific projects. Therefore, the project for a formal institution of the DTWG within the DNA structure was abandoned, considering that its function could have been equally performed by experts appointed through existing public administration procedures.

A very similar situation occurred with the Inter-ministerial CDM Focal Point (ICFP). In fact, after having established the CDM project evaluation procedure in accordance to Montenegrin laws, it was decided to insert a new phase in the process whereby the Ministry of Tourism and Environmental Protection ask the opinion of the interested ministries before making a final decision on approval/rejection of

the CDM project.[4] Therefore, the formal existence of the ICFP was considered to be redundant.

As a consequence of these amendments to the original proposal, the finally approved model of the Montenegrin DNA consists of two bodies – the CDM Committee and the Technical Operational Body (TOB). The procedures for approval of the proposed CDM projects were also simplified according to the new structure of the DNA.

In the meantime, the new draft of the Law on Environmental Protection was sent back to the revision procedure and exceeded the time limits set for the official establishment of the DNA. At the end it was decided to establish the DNA by a ministerial decision thus avoiding unnecessary procedures, taking into account that the chosen model was strengthened in terms of its "single department/government" nature.

By doing so, Montenegro minimized the investment of time and money that are necessary for the creation of new administrative structures by using procedures and expertise that were already in place.

A possible disadvantage of this model could be the overburdening of the Ministry's officials (CDM Committee Members) with additional responsibilities, though these decision-making positions require experienced senior officials. An alleviation of this risk could be, nevertheless, achieved with a professional and committed TOB which can perform most part of the job.

7.3 Part II: The DNA as It Currently Stands

7.3.1 The Current Structure and the Division of Competences of the Montenegrin DNA

The Montenegrin DNA was officially established on 2 February 2008, under Ministerial Decision No. 01-330/1, which conferred legal status to the new body.

According to the model finally adopted, the DNA of Montenegro is now composed of two bodies: the CDM Committee, which performs a regulatory and political role, and the Technical Operational Body (TOB), responsible for the technical and

[4] The interested Ministries are:

1. Ministry for Economic Development for projects in the sectors of energy production, energy distribution, energy demand, manufacture industry, chemical industry, construction, mining and mineral production, metal production, fugitive emissions from fuels, fugitive emission from production and consumption of halocarbons and sulphur–hexafluoride and use of solvents.
2. Ministry of Agriculture, Forestry and Waterpower for projects in the agricultural sector and for afforestation and reforestation projects.
3. Ministry of Maritime Affairs, Transport and Telecommunications for projects in the transport sector.
4. Ministry of Finance, for projects involving public funds.

operational tasks. In particular, the CDM Committee, hosted within the premises of the Ministry of Tourism and Environmental Protection (from June 2009 named Ministry for Spatial Planning and Environmental Protection), serves as the main regulatory body and is responsible for all DNA activities. It accepts requests for CDM projects approval, validates the opinion of the TOB on the projects' feasibility and their contribution to sustainable development and retains the final decision-making power over rejection, approval, or approval under conditions, of the CDM project proposals.

Since it incorporates the UNFCCC National Focal Point for CDM, the CDM Committee serves as the main contact point to the UNFCCC as well as to potential investors, CDM project participants and DNAs from other host or investor countries; more generally, it is the body that officially represents the DNA at the international level. Other functions that the CDM Committee may carry out include: providing general supervision to ensure that CDM projects are placed within the appropriate international cooperation framework, facilitating coordination, both internally in the DNA and on the inter-governmental level, in order to enable the smooth development of the process for the evaluation and approval of CDM projects, and overseeing promotional activities.

The Technical Operational Body is the DNA unit primarily responsible for the operative and technical tasks related to the evaluation and approval of CDM projects proposals. Specific activities under the TOB responsibilities include: carrying out a preliminary screening of the project proposals in order to verify the completeness of the project documentation, performing a detailed technical analysis of the project proposals, including an assessment of their contribution to sustainable development, performing public consultation processes and integrating the results in the project evaluation report, drafting project approval opinions and Letters of Approval to be ultimately validated by the CDM Committee, communicating with project participants about approval or rejection of their project proposals, performing the necessary promotional activities, providing information to the public, and monitoring the implementation of the project.

Although the final decision-making power on the approval or rejection of CDM projects proposal lies with the CDM Committee, the role of the TOB is of utmost importance in the overall process, as it is vested with the delicate task and the responsibility to undertake the technical evaluation of the project and to draft the opinion on which the CDM Committee will base its final decision.

7.3.2 Preparing the DNA to Effectively Perform Its Functions

7.3.2.1 The Elaboration of Internal Procedures for CDM Projects Evaluation

Once the DNA had been established and its structure and respective competences defined, it was necessary to enable the new body to effectively perform its functions.

In the initial phase, priority has been given to the actions necessary for the evaluation and approval of CDM projects proposals. An important task consisted of the elaboration and adoption of the procedures, timeframe and criteria for the evaluation and approval of the submitted CDM projects.[5] With respect to this, particular attention has been paid in achieving an appropriate balance between the establishment of smooth procedures and the need to ensure accurateness and quality in the evaluation of the Project Design Documents and in the decision-making concerning CDM projects. An efficient and transparent review procedure is in fact a key factor in attracting investors.[6] Moreover, the procedures for CDM projects evaluation and approval had to be adjusted to the current DNA structure and adapted to the particular situation of Montenegro, from the point of view of prospective CDM project activities. Given its small size, the country is more likely to attract small-scale CDM projects, rather than a large number of more complex large-scale CDM project activities. Therefore, it was more appropriate to focus on clear and transparent rules and to define procedures which allow project proposal to be examined in an accurate way and approved within a relatively short timeframe.

In this perspective, the optional requirement of a preliminary Project Idea Note (PIN), which was foreseen in the first proposal for the approval procedures, was finally avoided. In addition, the replacement of the Inter-ministerial CDM Committee with a specific article of the guidelines (article 5) prescribing compulsory consultation of the interested ministries on the project proposal, would ensure the appropriate political support to the project approval decisions, without excessively overburdening the evaluation procedure and the overall DNA structure. Finally, transparency is ensured, inter alia, through publication on the DNA website of project review procedures, calls for projects submission, the project proposals received and any other relevant information.

The project evaluation procedure finally adopted provides for a relatively short timeframe of 30–40 days in total and is articulated in four phases:

- Preliminary screening
- PDDs analysis and evaluation
- Public consultation
- Final decision

The procedure starts when project proponents submit to the DNA Committee an application containing the letter requesting approval of their project proposal,

[5] The "Guidelines on the Internal Procedure, Criteria and Timeframe under which submitted Clean Development Mechanism Projects are evaluated and approved" are published and available on the Montenegrin DNA website, at http://www.vlada.cg.yu/eng/mintur/vijesti.php?akcija=rubrika&rubrika=344

[6] M. Castro, The Functions of a National Authority, in *Establishing National Authorities for the CDM: A Guide for Developing Countries,* C. Figueres (ed.), IISD, 2002; see also *How to Guide – national and Institutional Frameworks for the Kyoto Protocol Flexible Mechanism in Eastern Europe and the Commonwealth of Independent States*, UNDP, 2006.

the Project Design Document (PDD), the Matrix, duly completed, embodying the Sustainable Development criteria together with a brief explanation of how the project contributes to the country's sustainable development and the Environmental Impact Assessment, in case the project falls within a category for which such assessment is required. The submitted documentation is then received by the TOB which makes a preliminary screening of the completeness of the information and requests, where necessary, the missing documentation. Once the documentation is complete, the TOB publishes the Project Design Document on the DNA website for public consultation.

After this preliminary screening, the TOB undertakes a detailed analysis of the project proposal under three main aspects – the compatibility of the project with relevant sustainable development criteria and indicators, its feasibility and, where the project falls within one of the categories for which environmental impact assessment is prescribed, the fulfilment of the relevant requirements in accordance with the Montenegrin Law on Environmental Impact Assessment.[7] Then, the TOB, within 20 days from the project application submission, writes a short report on the PDD main critical issues and identifies the interested ministries to which the report shall be transmitted for opinions.

During the following phase, the TOB considers the opinions expressed by the consulted ministries on the project proposal and the relevant comments presented by the public following the publication of the PDD on the website. In this intermediary phase the TOB may still ask the project participants for additional information. At the end, the TOB writes a report summarizing the results of its detailed evaluation, the comments of the public and the opinions of the interested ministries and transmit it to the CDM Committee.

On the basis of the technical evaluation performed by the TOB, the outcomes of public consultation and the Ministries' opinions, the CDM Committee, within 5 days from the receipt of the TOB's report, takes the final decision on whether to approve or reject the project or approve it under conditions. In the latter case, project participants are asked to present to the CDM Committee a written commitment containing the measures that will be undertaken in order to comply with the conditions set forth by the CDM Committee. Finally, the TOB publishes the CDM Committee decision on the DNA website. A Letter of Approval or Rejection of the project is thus sent to the project participants.

7.3.2.2 The Identification of Sustainable Development Criteria and Indicators

An important part of the work related to the establishment of the appropriate legal and policy framework for the implementation of CDM projects in Montenegro consisted in the identification of sustainable development criteria and indicators.

Achievement of host countries' sustainable development and cost-effective reduction of developed countries' GHGs emissions are the twin pillar objectives of

[7]Law on Environmental Impact Assessment, *Official Gazette* No. 80/05.

the whole CDM.[8] However, since CDM is essentially a market based mechanism and sustainable development mechanisms are not monetized in the carbon market, the sustainability objective may not be given the proper attention and priority with respect to the cost-effective reduction of GHGs. Experiences so far occurring with CDM projects around the world reveal that, due to their higher costs, small-scale renewable energy and energy efficiency projects with higher sustainability benefits are likely to occupy a smaller proportion of the CDM project portfolio than large end-of-pipe projects (e.g. in industry) that offer cheaper emission reductions, but less obvious non-GHGs/sustainability benefits.[9] Market considerations also explain the higher concentration of CDM project investments in bigger developing countries, such as China, India, Mexico or Brazil which potentially offer higher opportunities for investors. Moreover, the fact that the host country is free to determine the criteria for CDM projects' contribution to sustainable development may lead to procedures where less stringent criteria for sustainable development are applied in the framework of the project approval process to make it shorter and more appealing to potential investors.[10]

Thus, the host country has an important role to ensure that CDM project activities be effectively oriented towards achieving sustainable development. In particular, it is important that the sustainable development objectives are clearly defined, integrated into other policies and programmes and grounded on a solid legal basis.

Montenegro offers a good example in this respect. In January 2007, the country adopted its National Strategy for Sustainable Development (NSSD).[11] The Strategy and the related Action Plan set long term guidelines for the country's sustainable development, with a first time horizon 2007–2012. The scope of the Strategy is very broad and integrates within the national concept of sustainable development a social, ethical and cultural vision alongside traditional principles of economic development and environmental protection. The Strategy includes within a single coherent framework the three main pillars of the country's sustainable development: economic development, environment and natural resources protection and social development. For each of these three pillars, it identifies the key areas or sub-sectors of interventions, indicates related problems and challenges and defines the objectives to be achieved in a sustainable development perspective.

The Strategy provides the general framework of reference for the assessment of the CDM contribution to the national sustainable development. In order to make it

[8] Article 12(2) of the Kyoto Protocol.

[9] J. Ellis, H. Wrinkler, J. Corfee-Morlot, F. Gagnon-Lebrun (2007) *CDM: taking stock and looking forward*, *Energy Policy* 35:15–28. On the relationship between the principle of sustainable development and the climate change regime, see M. Montini (2008) *Sustainable development within the climate change regime*. In H. C. Bugge, C. Voigt (eds) Sustainable development in international and national law, Europa Law Publishing, Gronigen.

[10] *Ibidem.*; see also K Holm Olsen (2007) *The clean development mechanism's contribution to sustainable development: a review of the literature*. Climate Change 84:59–73.

[11] National Strategy of Sustainable Development of Montenegro, Government of the Republic of Montenegro, Ministry of Tourism and Environmental Protection, January 2007.

operational with respect to the practical evaluation of the CDM projects, specific indicators have been proposed for each sector of intervention on the basis of each of the Strategy's relevant objectives. These sustainable development indicators have been inserted in a special Matrix, available on the DNA website, that Project Participants are requested to fulfil and submit together with the PDD. The Matrix provides the basis against which the TOB is called to assess the sustainability of the proposed CDM project activities. It is also a helpful instrument for project developers in order to previously assess the sustainable development impact of their project before submitting to the DNA for approval.

7.3.2.3 Capacity Building: Training of the DNA Staff

Once the institutional and procedural framework for the DNA had been set up, an important part of the assistance provided under the framework of the bilateral cooperation between Italy and Montenegro for the implementation of the Kyoto Protocol focused on the training and capacity building of the DNA staff.

Although Montenegro is firmly engaged in the implementation of the Kyoto Protocol and the DNA members have so far demonstrated their commitment, CDM project activities are raising completely new issues for the country. Therefore, appropriate training sessions were organized in order to prepare the DNA to face all challenges stemming from the implementation of CDM project activities and, more specifically, to prepare the TOB to undertake the CDM review process. The scope and purpose of the training was relatively wide as it was aimed at building the necessary expertise to understand all CDM project requirements, including the national development priorities, the legal issues related to CDM project as well as the technical aspects involved in the evaluation of the PDDs for the specific CDM project activities.

Obviously, the implementation of CDM project activities is a "learning by doing" process and the appropriate expertise will be acquired only by practice. Being CDM development a totally new issue in Montenegro and, generally, in the Western Balkans, most of the problematic aspects will be dealt with and solved on a case by case basis. Legal and technical assistance of experienced international experts will still be required, at least in this start-up phase, in order to support the DNA members during the most complex phases of its work. In the longer term perspective, however, the DNA will hopefully develop the necessary capacity and expertise to autonomously supervise and monitor CDM project development in the country and, more generally, to supervise the implementation of the Kyoto Protocol.

7.3.2.4 Developing CDM Project Activities in Montenegro

The role and the functions of the newly constituted Montenegrin DNA must be properly examined in the broader context of activities undertaken by the Montenegrin Government in order to create a favourable environment for the development of

CDM projects. Due to its political and legislative stability and the good carbon credits potential,[12] Montenegro represents an attractive destination for companies willing to invest in clean technologies and engage in projects that reduce GHGs emissions. At the same time, it is crucial that foreign investments in CDM projects are appropriately directed towards the sectors where they could best contribute to the country's economic and sustainable development.

To this purpose, the first step within the CDM development process consisted in the assessment and identification of projects opportunities in the country. On this basis, a portfolio of CDM potential projects, elaborated under the umbrella of the cooperation between the Montenegrin Ministry of Tourism and Environmental Protection and the Italian Ministry for the Environment, Land and Sea, was officially presented in 2007.[13] It focused on four main areas where the development of CDM project activities would be welcomed: the production of electricity from renewable sources; the improvement of energy efficiency in public and private buildings; the implementation of an appropriate system for collection and treatment of waste and, to a limited extent, forestry. Special attention was placed on investments in renewable sources, given the country's promising energy production potential and its need to reduce the high import dependence.

This portfolio offers a helpful starting point for prospective investors that are given indications on the sectors where the implementation of a CDM activity is most likely to be approved by the Host Country.

By the end of 2008, nine of the sixteen identified potential projects have been awarded, through open tendering procedure, to six selected companies that had answered positively to the invitation to express their interest in co-financing feasibility studies and PDDs. They represent the first set of projects which will have to be evaluated by the TOB and DNA Committee and to be developed as CDM initiatives in Montenegro. In addition, several projects are under consideration as pilot initiatives and it is expected, now that the TOB/DNA has definitely been set up, more project ideas will hopefully come in the near future.

---

[12] According to what stated in the *Assessment of the Projects Potential in the fields of renewable Energy Sources, Energy Efficiency, and Forestry Management in the Framework of Clean Development Mechanism of the Kyoto Protocol in Montenegro*, Italian Ministry for the Environment, Land and Sea, 2007 (Portfolio of CDM projects in Montenegro), p. 8. A preliminary analysis of the carbon potential in Montenegro has estimated an aggregate potential in terms of CO_2 at around 2.5 million tons of CO_2 q per year, with an estimated resulting potential carbon investment at between 12 million and €25 million per year.

[13] Italian Ministry for the Environment, Land and Sea, *Assessment of the Projects Potential in the fields of renewable Energy Sources, Energy Efficiency, and Forestry Management in the Framework of Clean Development Mechanism of the Kyoto Protocol in Montenegro* (Portfolio for Montenegro), 2007. The portfolio is available on www.ambientebalcani.it

7.4 Conclusion

The progress made by Montenegro in the establishment of the DNA, offers a very interesting and positive example. Examined in light of the many challenges that the new State had to face following its independence, these achievements reveal the strong commitment of this new country towards the implementation of the Kyoto Protocol and the attainment of a sustainable development.

Now that the institutional and procedural framework of the DNA has been established, the next steps shall focus on the effective development of CDM project activities in the country. In that respect, it will be important to elaborate guidelines and procedures related to the internal functioning of the DNA. One of the possible risks of the current bipartite structure of the DNA is a low level of communication and, consequently, a lack of coordination between the two bodies, respectively hosted within the premises of the Ministry of Tourism and Environmental Protection (from June 2009 named Ministry for Spatial Planning and Environmental Protection) and the Environmental Protection Agency. It is, indeed, important that the TOB and the DNA Committee act in a coordinated manner and appear to the investors as a unitary entity.

Finally, the next phase shall also envisage an increased emphasis on the promotional role of the DNA so as to attract foreign direct investments and increase Montenegro international visibility in the CDM context. Possible actions to be undertaken in this respect include constant updating of the DNA website and improving communication between the DNA bodies and current and potential investors, also by providing technical assistance to project developers in the preparation of project proposals.

Chapter 8
DNAs Experiences in the Western Balkans: The Republic of Serbia

Slavko Bogdanovic, Andrea Rossi and Svetlana Nojkovic

8.1 Introduction

The Republic of Serbia was formally established in June 2006, after the independence of the Republic of Montenegro led to the split of the former State Union of Serbia and Montenegro.

Serbia is located in the very heart of Balkan Peninsula and has a territory of approximately 88,000 km^2, with about 7,500,000 inhabitants. After the severe economic crisis experienced in the nineties, the Serbian economy has recovered quite rapidly and its national GDP per capita has grown significantly.

Serbia is a Democratic Republic, where the legislative power is shared between the Government and the National Assembly. Apart from to the central government, Serbia has an Autonomous Province (Vojvodina) and 196 municipalities, which hold several sectoral competences.

The new Constitution of the Republic of Serbia, adopted in 2006, has formally introduced the right of Serbian citizens to a healthy environment.

According to the Serbian governmental structure, most of the competences on environmental matters belong to the Ministry of Environment and Spatial Planning.[1]

However, a few other ministries are responsible for certain environmental-related matters. The Ministry of Mining and Energy, for instance, is responsible for renewable

S. Bogdanovic
Member of the Environmental Legal Team, University of Siena

A. Rossi
Former Member of the Environmental Legal Team, University of Siena

S. Nojkovic
Senior Adviser to the Ministry of Environment and Spatial Planning of the Republic of Serbia

[1]This Ministry was established in 2003 as "Ministry of Natural Resources and Environmental Protection". In 2004, this Ministry was renamed "Ministry of Science and Environmental Protection", while 3 years later, in May 2007, the name of the ministry changed again into "Ministry of Environment and Spatial Planning".

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_8,

energy and energy efficiency measures, while other environmental-related competences lie within the Ministry of Economy and Regional Development, the Ministry of Health and the Ministry of Infrastructures.

During the past few years, the Republic of Serbia has started the process of harmonization of its laws with the European Union legislation, through its participation to the Stabilization and Association Process, which sets a number of requirements for the future accession of Balkan countries to the European Union (EU), and to the subsequent Stabilization and Association Agreement (November 2005).[2]

As part of this process, in July 2004, the Serbian Government adopted the first Action Plan for the Approximation of Domestic Laws with the Community *acquis*, which has been reviewed every year since its adoption.[3]

One of the objectives of this Plan is the harmonization of Serbian environmental legislation with the EU *acquis* in this sector.

With the ratification of the Stabilization and Association Agreement with the European Union in 2008,[4] the Republic of Serbia has committed itself to cooperating with the EU and to promoting the harmonization of its legislation with the Community environmental *acquis*.

To this effect, Serbia has to develop strategies aimed at abating local, regional and trans-boundary air pollution and has to establish a national framework for efficient and sustainable energy production and use.

Notably, in the process of harmonization with the EU environmental and energy *acquis*, special attention shall be given to the implementation of the Kyoto Protocol and to the development of a suitable legislative framework for the establishment of the DNA and for hosting CDM projects.[5]

To this respect, throughout 2008 the Government of Serbia developed and adopted several legal instruments aimed to establish the DNA and to set up the framework for the fulfillment of its tasks. As will be discussed in the following sections, however, in our opinion, the new Law on Air Protection, which was drafted in the framework of the IMELS legal assistance programme and adopted in 2009,[6] might be regarded as a more suitable legal basis for the establishment of the Serbian DNA.

Finally, it should be noted that the Republic of Serbia is required to approximate its national legislation to the Community *acquis* on both the environment and energy sectors also on the basis of the Energy Community South East Europe Treaty (ECSEE), which was signed in Athens (Greece) on 25 October 2005 and

---

[2] The negotiations for the accession of the Republic of Serbia to the EU were temporarily suspended in 2006 due to the country's lack of compliance with its obligations related to the International Criminal Tribunal for the Former Yugoslavia.

[3] In 2004, the Serbian National Assembly approved the Resolution on the Accession to the European Union (*Official Gazette of the Republic of Serbia* No. 48/2004) and, 1 year later, the National Strategy for the Accession of Serbia to the European Union was adopted by the government.

[4] The SAA was signed on 29 April 2008, and ratified by Serbia on 10 September 2008 (*Official Gazette of the Republic of Serbia – International Treaties*, No. 83/08). As of June 2009, the SAA had not been ratified by any EU Member State, due to political reasons.

[5] Article 111. For Serbian text of the SAA see http://www.parlament.sr.gov.yu/content/cir/akta_detalji.asp?Id=477&Z#.

[6] Official Gazette No 36/2009.

was ratified by Serbia on 9 August 2006. According to article 13 of the Treaty, Parties shall endeavor to ratify the Kyoto Protocol.

8.2 The Ratification of the UNFCCC and of the Kyoto Protocol

The Republic of Serbia (as the State Union of Serbia and Montenegro) ratified the UNFCCC[7] in 1997. It holds the status of Non Annex I country, with no legally binding GHG emission reduction commitment. Following the split of Serbia and Montenegro in 2006, Serbia became the legal successor in all treaties previously ratified by the former State Union.

Some years later, precisely on 19 October 2007,[8] the Republic of Serbia ratified the Kyoto Protocol, that finally entered into force on 17 January 2008, following its ratification by the National Assembly. The reasons that led the Republic of Serbia to ratify the Kyoto Protocol were multifold.

From the political standpoint, the Republic of Serbia saw the ratification of the Kyoto Protocol as an important step towards the achievement of sustainable development.

At the same time, from an external relations perspective, strengthening the cooperation with the international community in the field of climate change was regarded by the Republic of Serbia as a key step to improve the country's role in the international context.[9]

Another factor that led Serbia to ratify both the UNFCCC and its implementing protocol was the perception of a growing vulnerability of South Eastern Europe countries to cause climate change and the need to increase international technical and scientific cooperation aimed at developing an effective response to climate change. These issues were also discussed during the Sixth Ministerial Conference "Environment for Europe",[10] which was held in Belgrade in October 2007 and during which it was decided to establish, in the Serbian capital, a sub-regional, virtual climate change related centre in Belgrade.[11]

Finally, the ratification of the Kyoto Protocol offered the Republic of Serbia the opportunity to benefit from Clean Development Mechanism (CDM) projects. This flexible mechanism established by the Kyoto Protocol enables Annex I countries to use Certified Emission Reductions (CER) generated through CDM projects hosted in Non-Annex I countries such as Serbia. These projects may contribute to sustain-

---

[7] Official Gazette of the FRY – International Treaties, No. 2/1997.

[8] See Official Gazette of the Republic of Serbia No. 88/07.

[9] Rationale to the Governmental Proposal of the Law on Ratification (in Serbian), p. 4; http://www.srbija.gov.rs/vesti/dokumenti_pregled.php?id=67447.

[10] Held on 10–12 October 2007 in Belgrade.

[11] Belgrade Initiative: Enhancing the Regional SEE Cooperation in the Field of Climate Change – Climate Change Framework Action Plan for the See Region, and the Establishment of a Sub-Regional, Virtual Climate Change Related Centre for Research and Systematic Observation, Education, Training, Public Awareness, and Capacity Building. http://www.unece.org/env/documents/2007/ece/ece.belgrade.conf.2007.20.e.pdf.

able development and help non-Annex I countries to achieve their economic, social and environmental goals, through technology transfer and job creation.

It is important to mention that, as a consequence of the ratification of the Kyoto Protocol, the Republic of Serbia has committed to contribute, according to its possibilities, to the global decrease of GHG emissions. In addition, Serbia has committed reduce emissions from local air pollution sources generally associated with significant level of GHG emissions as well, such as thermoelectric facilities and other industrial sources. For this reason, the implementation of the Kyoto Protocol in the Republic of Serbia might contribute to the reduction of both GHG and non-GHG emissions, with a positive effect on a number of environmental issues currently affecting Serbia.[12]

With regard to the obligations arising from both the UNFCCC and the Kyoto Protocol, the Serbian Ministry currently known as Ministry of Environment and Spatial Planning, which holds most of the environmental competences, was chosen as National Focal Point for the UNFCCC, serving as coordinator and facilitator for the implementation of the obligations and activities envisaged in the Convention and in the Protocol.

According to articles 4 and 12 of the UNFCCC, each Party shall submit to the Secretariat of the Convention an inventory of greenhouse gas (GHG) emissions, which shall be included into the periodical National Communications of Non Annex I Parties. To this effect, Serbia is currently preparing, through a project funded by the Global Environment Facility, its GHG inventory for the Initial National Communication to the Secretariat of the UNFCCC. Earlier, the Federal Republic of Yugoslavia had already prepared, with support from Greece, a preliminary draft of GHG emission inventory for the period 1990–1998.

In addition, the newly adopted Serbian Law on Air Protection,[13] requires the monitoring of GHG emissions to be established and performed[14] and the respective national inventory to be prepared. This inventory should be an integral part of the registry of emissions into the atmosphere of the Republic of Serbia.

8.3 The Establishment of the DNA

8.3.1 Choosing the Legal Ground for Establishing the DNA

The ratification of the Kyoto Protocol is a necessary – but not sufficient – condition for the Republic of Serbia to be able to host, as a Party not included in the Annex B to the Kyoto Protocol, CDM projects.[15]

---

[12] For example, Belgrade, Bor, Vranje, Ivanjica, Kikinda, Kragujevac, Lucani, Novi Sad, Obrenovac, Pancevo, Cacak, Sabac.

[13] See note 6.

[14] According to Article 50 of the Law, the Serbian Government shall prescribe the methodologies for the monitoring of GHG emissions.

[15] As part of the technical and legal assistance activities provided by the Italian Ministry of the Environment, Land and Sea to the Republic of Serbia, a portfolio of potential CDM projects was identified in Serbia. More information on this are available at the following web address: http://www.ambientebalcani.it.

According to the Protocol, another fundamental requirement for hosting CDM projects is the establishment of a Designated National Authority (DNA).

The structure of the DNA may be determined according to specific national circumstances and needs. Among the various models that have been adopted in different countries, four main categories may be identified, entailing, respectively:

- The creation of a dedicated, independent governmental structure.
- The delegation of the DNA functions to the UNFCCC national focal point.
- The delegation of the DNA functions to an external office.
- The establishment of an inter-ministerial structure.

Among the four possible structures listed above, Serbia chose the fourth one.

8.3.2 The Governmental Conclusion on DNA of 5 June 2008

In June 2008, the Government of the Republic of Serbia adopted a Conclusion[16] enabling six ministries[17] to conclude an agreement on the establishment of a joint body for the implementation of CDM projects in the Republic of Serbia.

The legal basis for this approach was found, quite unusually, in the Law on Government[18] and the Decree on Principles for Internal Setting-up and Systematization

[16] Conclusion 05 No. 02-2099/2008-1 of 5 June 2008.

[17] Ministry of Economy and Regional Development; Ministry for Environmental Protection and Spatial Planning; Ministry of Agriculture, Forestry and Water Economy; Ministry for Mining and Energy Industry; Ministry of Infrastructure; and Ministry of Finance.

[18] *Official Gazette of the Republic of Serbia* No. 55/05, 71/05 and 101/07. Article 17, paragraph 1 of that Law contains a provision limiting the working competences of the Government whose term of office was terminated, to the execution of the only ongoing activities, without any possibility of making proposals for new laws and other legal instruments to the People's Assembly. According to that provision, the Government may not adopt legislative instruments, except in case when adoption of them is connected to the deadline established by the Law, or in case when the prominent interest of the State is involved, or, finally, in case of a specific interest related to national defense or to a natural, industrial of technical emergency.

In connection to this provision, Article 43 deals with the decisions the Government may adopt. Paragraph 3, in particular, states that the Government may issue a conclusion when no other legal instrument may be adopted. The Governmental decree is a legislative instrument that the Government is allowed to adopt by the Constitution of the Republic of Serbia for execution of laws only. Having neither Constitutional ground, nor any other legal ground set by law for adoption of a CDM/DNA decree, being in the situation (termination of term of the office) when only limited possibilities for decision-making were at disposal, the Government of the Republic of Serbia decided to adopt the wished decision in the form of a conclusion.

of Work Positions in the Ministries, Special Organizations[19] and Services of the Government[20]. A deadline of 30 days was left for the execution of the Conclusion.

8.3.3 The Inter-ministerial Agreement on DNA of 30 July 2008

The Agreement on the Establishment of the DNA for the Implementation of the Kyoto Protocol CDM Projects was signed by the Ministers of new Government of the Republic of Serbia[21] on 30 July 2008[22]. Its legal bases may be found in Article 27, paragraphs 1 and 3 of the Governmental Decree on Principles for Internal Setting-up and Systematization of Work Positions in the Ministries, Special Organizations and Services of the Government[23] and the above-mentioned Conclusion adopted by the former Government on 5 June 2008. The Law on Ministries, which was in force at the moment of signing the inter-ministerial Agreement signed, was not mentioned at all as one of the legal bases of the Agreement.

The Agreement consists of 14 Paragraphs. Paragraph 1 is the declaratory one, stating that "by this Agreement the Designated National Authority (DNA) for the implementation of the Kyoto Protocol CDM is established". The purpose of the DNA is determined as follows:

- Setting conditions and procedures for the submission and approval of CDM projects, including national sustainable development criteria
- Checking the accordance of CDM projects with the national sustainable development criteria, with national legislation in general, and with the procedures and conditions for the submission and approval of CDM projects
- Taking the decisions on the approval or rejection of CDM project proposals (including the issuance of Letters of Approval and Rejection)[24]

---

[19] By the Law on Ministries (Official Gazette of the Republic of Serbia, No. 08, enacted 05.07.2008; http://www.parlament.sr.gov.yu/content/cir/akta/akta/_detalji.asp?Id=472&t=Z) the Ministries and special organizations of new Government were established and their scope of competence was designed (Article 1). In Article 30 the list of 13 special organizations of the Government has been given. The DNA is not listed there. The possibility for establishment of new (additional) special organizations is given in Paragraph 2 through a provision stating that "special organizations" may be established and their scope of competence may be designed by a special Law (the expression in this provision "*posebnim zakonom*" does not imply a legal instrument that would be a kind of *lex specialis*, but only another Law, different from the Law on Ministries. Actually, it seems that Serbian expression *drugi* (other) would better fit here than the expression *posebni* (special)).

[20] Official Gazette of the Republic of Serbia, No. 81/07, consolidated text.

[21] The relevant ministries are: the Ministry of Environmental Protection and Spatial Planning; the Ministry of Economy and Regional Development; the Ministry for Infrastructure; the Ministry of Agriculture, Forestry and Water Economy; the Ministry of Mining and Energy; and the Ministry of Finance.

[22] No information is available on whether this Agreement was published.

[23] See note 20.

[24] Paragraph 2.

According to the Agreement, the DNA consists of a Working Group and a Secretariat[25], and it is managed by the Minister of Environmental Protection and Spatial Planning[26]. The DNA Working Group is composed by appointed representatives of all undersigned ministries.[27] In addition to them, representatives of other institutions may be invited by the DNA Secretariat to join the Group. Additional individual experts may be engaged by the ministries participating in the activities of the DNA Working Group.[28]

The tasks of the DNA Working Group have been designed as follows:

- Prepare proposals for national sustainable development criteria.
- Propose conditions for the application and acceptance of CDM projects.
- Propose procedures for the application and acceptance of CDM projects.
- Perform the technical assessment of the proposed CDM projects.
- Submit its opinion on the proposed CDM projects.
- Check the accordance of the proposed CDM projects with the national sustainable development criteria and with the procedures and conditions for the submission and approval of CDM projects.
- Check the accordance of the proposed CDM projects with national legislation.[29]

The DNA Working Group shall make its harmonized opinion for approval or rejection of a CDM project by consensus, on the basis of the individual opinions of the Members of the Group.[30]

The Ministry for Environmental Protection and Spatial Planning is acting as DNA Secretariat. In this capacity, its functions include:

- Collecting the CDM project proposals.
- Establishing contacts with interested subjects.
- Coordinating the work of the DNA.
- Transmitting the CDM project proposals to the Working Group.
- Drafting the Letter of Acceptance or the Letter of Rejection (on the basis of the opinion of the Working Group).[31]
- Submitting[32] for approval the Letter of Acceptance or the Letter of Rejection to the ministries competent for certain CDM project.
- Preparing the final texts of Letter of Acceptance or Letter of Rejection.

---

[25] Paragraph 3.

[26] Paragraph 4.

[27] Paragraph 5.

[28] Paragraph 6.

[29] Paragraph 7.

[30] Paragraph 10.

[31] Paragraph 11.

[32] In accordance with Paragraph 11, the Minister for Environmental Protection and Spatial Planning shall be responsible for this submission.

- Making contacts and submitting applications for the registration of the CDM projects to the EB CDM.
- Attending the daily administrative duties of the DNA.[33]

The Minister for Environment and Spatial Planning shall sign the Letters of Acceptance or Rejection of CDM project proposal. For some specific CDM project proposals, the previous approval of the competent ministries is required.[34]

8.3.4 The Ministerial Rules of Procedure for CDM projects of 21 November 2008

Despite the legal doubts which may be raised on the legitimacy of the procedures followed for the establishment of the DNA, the Ministry for the Environment and Spatial Planning eventually adopted the Rules and Procedures for CDM projects assessment on 21 November 2008.

The "Rules of Procedure on the Way of Work, Criteria and Terms in Case of Assessment and Acceptance of Potential CDM Projects by the DNA for Implementation of the Kyoto Protocol CDM Projects"[35] consist of 12 Articles regulating:

- Definitions.[36]
- Application form for acceptance of the CDM projects and accompanying documents.[37]
- Way of handling application by the DNA (i.e. by its Secretariat and Working Group),[38] including the request for submission of additional information from

[33] Paragraph 8.

[34] Paragraph 12.

[35] Henceforth: Rules of procedure. The original Serbian title reads: *Poslovnik o nacinu rada, kriterijumima i rokovima prilikom ocene i odobravanja potencijalnih projekata mehanizma cistog razvoja od strane Nacionalnog tela za sprovodjenje Projekata mehanizma cistog razvoja Kjoto protokola*. The official number of the document is Br/No: 021-02-00004/2008-1 and it is dated 21 November 2008. The document was adopted by the Minister on 21 November 2008.

[36] Article 1. The definitions given refer to DNA, CDM project, Project Document, Notification on the Project Idea, Project Participants, DNA Working Group, DNA Secretariat, Interested Ministries, Public, and Interested Public.

[37] Article 2. The Application form is contained in Annex 2 to the Rules. According to this provision, application for acceptance of a CDM project must be accompanied by: the Project Document, the Rationale of contribution of the CDM project to sustainable development of the Republic of Serbia (the indicators of sustainable development, listed and described in Annex 1 to the Rules, should be listed and explained), the Preliminary Final Validation Report (prepared in accordance with the procedures prescribed by the EB CDM), the decision on approval of and the EIA Study (if due), and a contract regulating the mutual relations between the parties of the project.

[38] Article 3. This provision deals with specific procedural details, regulating additional completion of the application, publishing project document through the Internet (web page of the DNA, only), setting several deadlines, setting the list of interested ministries, etc.

the applicant and the respective deadlines for acting as well as the indication on relevant legal consequences.[39]
- Right to and deadline for submitting opinions by the ministries whose representatives are appointed in the Working Group.[40]
- Sessions of the Professional Group.[41]
- Hand-over of opinions received during the public consultations to the members of the Professional group by the Secretariat.[42]
- Decision making and final decision of the DNA.[43]
- Publication of the DNA decision.[44]
- Language and communications.[45]
- Submission of the notice on the CDM project idea (PIN).[46]
- Entry into force of the rules.[47]

The Rules of procedure have six Annexes.[48] In particular, Annex 1 contains the Criteria of Sustainable Development and the Table of National CDM Indicators.

[39] Article 7.

[40] Article 4. The ministries have 15 days to submit their opinions upon received CDM project documentation from the Secretariat. In case of negative opinion, the reason for that should be given with reference to the project aspects which contradict the Kyoto Protocol, national sustainable development criteria and positive legal norms of the Republic of Serbia. If there is no response to the DNA in 15 days, the DNA Secretariat shall assume that there is no objection to the proposed project and continue the procedure.

[41] Article 5. Decisions are taken by consensus.

[42] Article 6.This provision reads: Interested Public participation will also be realized through the process of obtaining opinions on Environmental Impact Assessment. It is not clear how this would be done, due to the fact that an EIA process is supposed to be already concluded and the decision on approval of EIA Study to be submitted as accompanying document to the CDM project application (in accordance with Article 2). So the interested public will have two chances to express its opinion, first during the public hearing within EIA and the second through the public consultation process upon the publication of the PDD on the official site of the Serbian DNA.

[43] Article 8. This provision regulates the activities of the DNA Secretariat and the Minister for Environment and Spatial Planning.

[44] Article 9. Decisions are to be published on the official DNA web site.

[45] Article 10. The applicants must submit all applications and accompanying documents in hard copies and in electronic form, in both Serbian and English language. The Preliminary Final Validation Report must be submitted in English only. Communication between the DNA Secretariat and the Working Group shall be in electronic form.

[46] Article 11. Participants in a CDM project may submit an application to the Secretariat in order to obtain support to their project idea. The form of application has been designed in Annex g to the Rules.

[47] Article 12. According to this provision, the Rules would enter into force on the day they are adopted by the Minister competent for Environment. No publication of the Rules in the *Official Gazette of the Republic of Serbia* or somewhere else has been envisaged.

[48] Criteria of Sustainable Development (Annex 1); Form of Application for issuance of the Letter of Acceptance (Annex 2); Form of Letter of Support (Annex 3); Form of Letter of Acceptance (Annex 4); Form of Letter of Rejection (Annex 5); and Form of Notification on the Project Idea (PIN) (Annex 6).

Such criteria are set according to the national indicators for sustainable development contained in the National Strategy of Sustainable Development. A proposed CDM project must satisfy at least one of the listed indicators for any of the three criteria of sustainable development.

The criteria for sustainable development set in Annex 1 to the Rules of procedure are divided into the usual three categories: economic; social; environment and natural resources criteria.

Economic criteria comprise the following areas:

- Investment conditions.[49]
- Sustainable transfer of technology.[50]
- Economic development of regions.[51]
- Employment.[52]
- Sector priorities.[53]
- Production and consumption.[54]

Social criteria comprise the following areas:

- Participation of interested parties. [55]
- Improving living conditions.[56]
- Strengthening capacities.[57]

[49] The indicators for this area are: inclusion of local partners and way in which it would be realized; contribution of the CDM project to enhancement of foreign investments; contribution of the CDM project to actual activities.

[50] The indicators for this area are: the best available technology; technology in accordance with local conditions.

[51] The indicators for criteria in this area are: contribution of the CDM project to development of underdeveloped areas; influence of the CDM project on price of electric power; contribution of the CDM project to development of regional/local infrastructure.

[52] The indicator for this area is: contribution to enhancing working places.

[53] The indicator for this area is: contribution to sector priorities.

[54] The indicators for this area are: energy intensity; contribution of the CDM project to decrease of dependence on import of energy by local inhabitants; contribution of the CDM project to participation of renewable sources of energy in total energy consumption balance; contribution of the CDM project to lowering of waste production; contribution of the CDM project to waste management in accordance with environmental protection requirements; energy intensity of traffic.

[55] The indicators for this area were set as: participation of interested parties in the process of preparation of the CDM project; support to the CDM project by the local level interested parties.

[56] The indicators for this area are: enhancement of employment on the local/regional level; enhancement of income on the local/regional level; Improving living conditions of poor and threatened communities; improvement of gender equality; contribution of the CDM project to public health.

[57] The indicators for this area are: contribution of the CDM project to transfer of knowledge and experience, necessary for use and maintenance of technology/equipment; participation of local companies in the CDM project realization; training of local inhabitants for implementation of new knowledge, technology and skills.

Environment and Natural Resources Criteria comprise the following areas:

- Energy resources.[58]
- Air.[59]
- Water.[60]
- Soil.[61]
- Biodiversity.[62]
- Natural resources.[63]

8.3.5 The Law on Air Protection (2009)

As already pointed out in paragraph 1, in May 2009 the new Law on Air Protection[64] was adopted, with the legal support of the IMELS cooperation programme. Interestingly, article 50 of the Law deals with GHG emissions and contains suitable provisions for prevention and decrease of air pollution, which can impact climate change, through the development of CDM projects. Moreover, the Law on Air Protection contains a more appropriate legal basis for the establishment of the DNA and empowers the Government to the definition of criteria and procedures for the approval of CDM projects.

8.4 Conclusions

A correct approach to the consideration of policy, legal and institutional aspects related to the introduction of the Kyoto Protocol CDM system into the legal system of the Republic of Serbia, requires at least some short comments on the following issues:

---

[58] The designed indicators for this area are: lowering of dependence on fossil fuels and import of energy; energy intensity; energy intensity of traffic.

[59] The indicators for air are: decrease of GHG emissions; decrease of other polluting substances (VOC, SO_2, NO_x).

[60] The indicators for water are: contribution of the CDM project to improvement of the quality of drinking water; contribution of the CDM project to sustainable use of waters.

[61] The indicators for soil are: consequences of changing the use of soil; contribution of the CDM project to preventing of soil degradation; contribution of the CDM project to sustainable use of soil.

[62] The indicators for biodiversity are: preservation of local and regional biodiversity; contribution of the CDM project to preservation/enhancement of soil covering by plants; contribution of the CDM project to covering of soil by forest species; contribution of the CDM project to use of biomass.

[63] The indicators for natural resources are: contribution of the CDM project to sustainable use of waters, forests, mineral resources, etc.

[64] See note 6.

- Commitment of the Republic of Serbia to comply with the international obligations contained in the Multilateral Environmental Agreements to which the Republic of Serbia is a Party.
- Commitment of the Republic of Serbia to the EU integration processes (implying the transposition of the Community *Acquis*).
- Legality (and constitutionality) of the instruments used in designing the institutional framework for the implementation of the Kyoto Protocol and the establishment of the DNA in the Republic of Serbia.

First of all, it seems clear that the Republic of Serbia has committed itself to participate in the international efforts aimed at controlling long-range air pollution, abating air pollution by GHG and preventing air pollution by substances that can harm ozone layer. There are only a few international treaties which the Republic of Serbia is not a Party to, but on-going activities are expected to result in ratification of those (i.e. Protocols to CLRTAP).

The commitment to the EU integration process has been formally demonstrated by the Republic of Serbia in 2008 through the ratification of the Stabilization and Association Agreement (SAA). Due to the well known political reasons, the SAA has not been ratified yet by the EU countries. However, the commitment of the Republic of Serbia, with regard to the transposition and implementation of the EU environmental legislation has been demonstrated additionally through the full transposition of several very important pieces of the EU "horizontal" legislation[65] and the adoption of important national policy instruments.[66]

The strong commitment and awareness of the authorities of the Republic of Serbia on the importance of the Kyoto Protocol resulted in undertaking a series of activities for the implementation of the Kyoto Protocol and the establishment of the DNA. As we have already noted above, the legitimacy of the legal acts adopted so far for setting up the DNA and preparing the framework for hosting CDM projects in Serbia may be questioned from a legal point of view for their lack of a proper legal basis. By the way, we believe that the recently adopted Law on Air Protection might provide a more suitable legal basis for the establishment of the Serbian DNA and for setting the appropriate criteria and procedure for CDM projects evaluation. As a result, it may be expected that Serbia will be ready to evaluate and approve CDM projects in the very near future, fully implementing the objectives and requirements of the UNFCCC and Kyoto Protocol.

[65] That is, the Law on SEA, The Law on EIA and the IPPC Law (Official Gazette of the Republic of Serbia, No. 135/04).

[66] For example, the National Strategy on Sustainable Development.

Part II
Technical Issues on the Kyoto Protocol and its Implementation Experiences in the Western Balkans

Section I
Technical Issues related to CDM Implementation

Chapter 9
The CDM Project Cycle

Radmila Vlastelica Sutic

9.1 Introduction

All projects that lead to GHG emission reduction under the Clean Development Mechanism (CDM) rules have to meet the same criteria and follow the same steps. These steps, known as CDM project cycle, are not regulated by Article 12 of the Kyoto Protocol, but find their legislative framework in Decision 3/CMP.1 of 30 November 2005 and its Annex.[1]

The steps and their duration in the project cycle are depicted in Fig. 9.1. The seven major stages of the CDM project cycle are:

- Project development
- Host country project approval
- Project validation
- Project registration
- Project implementation and monitoring
- Project verification and certification
- Issuance of CERs (Certified Emission Reduction)

Standard procedures shall be applied to all CDM projects, except the 'small-scale' project categories. Small-scale projects shall satisfy simplified procedures.

9.2 Project Development

The first phase within the project development process is the project scouting. After the phase of the project scouting, project developers should provide a Project Idea Note (PIN). A PIN contains preliminary information regarding the project, the

R. Vlastelica Sutic
Member of the Task Force for Central and Eastern Europe, IMELS

[1]Decision 3/CMP.1, Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol, UN Doc. FCCC/KP/CMP/2005/8/Add.1, 30 March 2006.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_9,

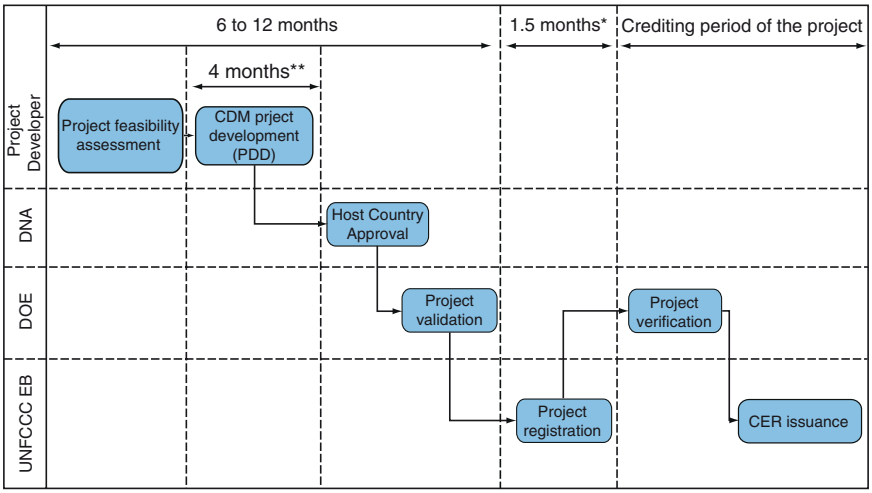

Fig. 9.1 CDM project cycle (Source: Guidebook to Financing CDM Projects, Denmark, May 2007, UNDP)

project owner, the financing plan, and a preliminary estimation of GHG emission reductions.

It should be mentioned that the development of a PIN may not be an obligatory step of the CDM project cycle, although it is a useful tool for the presentation of the project to the authorities and potential investors in host and investor countries.

A Project Design Document (PDD) has to be provided by the project developer in the second phase, according to the UNFCCC standards and CDM EB requirement.[2] The PDD includes a general description of the project, the application of a baseline and monitoring methodology, the duration of the project activity and crediting period (fixed or renewable), the information on environmental impacts and the stakeholders' comments.[3] In fact, the PDD is the key document for the validation, registration and verification of a CDM project.

9.3 Host Country Project Approval

As described in the chapters of Part I, Section II of this publication, the majority of the DNAs of the Western Balkan Countries analised, have chosen a two-stage process for CDM project approval.[4]

[2] http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html

[3] http://cdm.unfccc.int/index.html

[4] For more details, see Chapters 4–8 in this volume.

The first stage occurs when the project is still in the phase of PIN and at that time, a Letter of Endorsement (LoE) or a Letter of No-Objection has to be issued by the Designated National Authority (DNA). Those letters guarantee that the host country agrees with the project idea and usually helps a project developer to decide to continue or to stop a CDM project development activity.

The second stage occurs when the project is in the phase of the PDD: at this time, the project developer will request a national CDM project approval and authorization by submitting the complete PDD with the other required documentation to the competent DNA. The DNA will issue a Letter of Approval (LoA) following the procedure usually set out in a Presidential or Governmental Decree on the authorization of the DNA.

9.4 Project Validation

Validation is the process of independent evaluation of a project activity performed by a Designated Operational Entity (DOE) on the basis of the PDD correspondence with the requirements of the CDM as set out in decision 3/CMP.1, its annex and the related relevant decision and of the COP/MOP.

During the validation phase, the DOE makes the PDD publicly available on the UNFCCC website, open for public comments for a period of 30 days. During this period, the project proponents have the opportunity to provide clarifications and improvements through Corrective Action Requests. After the 30 day period, the DOE decides about the project and it confirms validation or not (see Fig. 9.2).

Usually, a desk review is performed before the DOE validation. The DOE may also conduct site-visits and discussions with the project participants and stakeholders.

The validation ends with the so-called validation report, a summary of the DOE findings. In case the outcome of the validation is positive, the DOE submits all the necessary documents to the CDM EB together with a request for project registration.

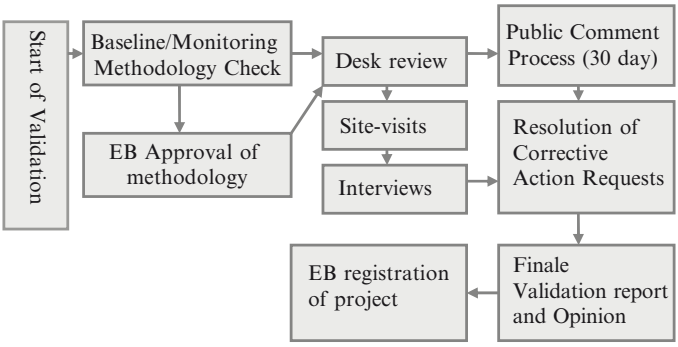

Fig. 9.2 Validation (Source: Guidebook to Financing CDM Projects, Denmark, May 2007, UNDP)

The validation report must be submitted as part of a request for registration of a proposed project activity using the "CDM project activity registration and validation report form" (F-CDM-REG) (EB 14, Annex 7, paragraph 2).[5]

If the result of validation is negative, the DOE informs the project participants of the reasons for non-acceptance. In such a case, the PDD can be resubmitted for validation after an appropriate revision.

For small-scale project activities or bundled small-scale project activities, a single DOE may perform validation, as well as verification and certification services.

Project participants willing to validate and/or register a CDM project activity shall choose between these two options:

- Use a methodology previously approved by EB; or
- Propose a new methodology to the Executive Board for consideration and approval.[6]

9.5 Project Registration

Registration is the formal acceptance by the Executive Board of a validated project as a CDM project activity. Registration is the prerequisite for the verification, certification and issuance of CERs relating to that project activity.[7]

With the CDM project cycle, at this stage the project activity is accepted as a CDM project by the EB and the project is eligible to generate certified emission reduction units.

In order to apply for registration of a project, the DOE must submit a request for registration in the form of a validation report, attaching:

- The project design document;
- The written approval of the host country;
- An explanation of how the DOE has taken into due account the comments received during the validation phase (EB 14, Annex 7, paragraph 1).

9.6 Project Implementation and Monitoring

Monitoring refers to the collection of all relevant data necessary for determining the baseline, measuring anthropogenic emissions by sources of greenhouse gases (GHGs) within the project boundary of a CDM project activity and leakage, as applicable.

It is mandatory that the project participants collect the necessary data and quantify emission reductions achieved by the project in an accurate way. Monitoring has

[5] http://cdmrulebook.org/PageId/62

[6] http://cdm.unfccc.int/methodologies/PAmethodologies/index.html

[7] See Decision 3/CMP.1, Annex, paragraph 36 (http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=6).

to be implemented as specified in the monitoring plan submitted as part of the PDD. The project monitoring report prepared by the project proponents has to cover all the items in the monitoring plan for each verification period for which they wish to have CERs issued.

9.7 Project Verification and Certification

Verification is the periodic independent review and ex post determination by the DOE of the monitored reductions in anthropogenic emissions by sources of greenhouse gases that have occurred as a result of a registered CDM project activity.[8]

The process of confirming the authenticity of reductions in greenhouse gas emissions by a CDM project over a defined period of time is called verification. In such a phase, a CDM project's emission reductions are monitored and the monitoring data for a verification period is reviewed and assessed.

Certification is the written assurance by the DOE that, during a specified time period, a project activity achieved the reductions in anthropogenic emissions by sources of greenhouse gases as listed in the verification report.

9.8 Issuance of CERs

Issuance refers to the creation of certified emission reductions (CERs) equivalent to the number of greenhouse gas emission reductions which have been generated, verified and certified with respect of a CDM project activity.

CERs are issued by the CDM registry administrator on behalf of the Executive Board. Upon being instructed by the Executive Board to issue CERs for a CDM project activity, the CDM registry administrator, working under the authority of the Executive Board, shall, promptly, issue the specified quantity of CERs into the pending account of the Executive Board in the CDM registry, in accordance with Appendix D of Decision 3/CMP.1.[9]

9.9 Special Provisions for Small-Scale CDM Projects

When developing a small-scale CDM project, the project participant still need to follow all stages of the typical CDM project cycle, but the single steps will be simpler and less time consuming to finalize, as highlighted below[10]:

---

[8] See Decision 3/CMP.1, Annex, paragraph 61; previously Decision 17/CP.7, Annex, paragraph 61.

[9] See Decision 3/CMP.1, Annex, § 66.

[10] http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html

– Reduced PDD requirements.
– Simplified baseline methodologies.
– Reduced monitoring plan to reduce monitoring costs.
– Additionality of the project activity could be explained by using only one of the types of barriers, i.e., investments, technology, prevailing practices, etc.
– The same DOE may undertake validation, verification and certification.
– Shorter time is needed for appraisal and registration of projects.
– Several project activities could be bundled and treated as a single project through the CDM project cycle.

9.10 CDM-Specific Project Costs

Apart from the fees charged by each host country,[11] it is important to highlight that certain specific costs are associated with the various stages of the CDM project cycle. The specific costs associated with the various CDM stages are shown in Table 9.1. These costs are added to the costs that would be incurred by the project regardless of whether or not it is registered as a CDM project.

[11] The fees charged depend on the country and on the type of project. For instance, China charges 65% of CER revenue for HFC projects or 2% of CER revenue for energy efficiency projects.

Table 9.1 Specific costs associated with CDM stages (Source: Guidebook to Financing CDM Projects, Denmark, May 2007, UNDP)

Activity	Cost (large-scale, US$)	Cost (small-scale, US$)	Cost (small-scale, US$)
Planning phase			
Initial feasibility study, i.e. Project Idea Note(PIN)	5,000–30,000	2,000–7,500	Consultancy fee or internal
Project Design Document (PDD)	15,000–100,000	10,000–25,000	Consultancy fee or internal
New methodology	20,000–100,000	20,000–50,000	Consultancy fee or internal
(if required)	(incl. US$ 1,000 UN registration fee)		
Validation	8,000–30,000	6,500–10,000	DOE fee
Registration fee (advance on SOP-Admin – see below)	10,500–350,000[a]	0–24,500[b]	EB fee
Total CDM-specific costs – planning phase	38,500–610,000	18,500–117,000	
Construction phase			
Construction, plant and equipment	Variable, depending on project type		Contractors fees
Installation of monitoring equipment	Usually minimal relative to total plant and equipment cost		Contractors fees
Total CDM-specific costs – construction phase	Usually minimal relative to total plant and equipment cost		
Operation phase			
UN adaptation fund fee	2% of CERs	2% of CERs	EB fee
Initial verification (incl. system check)	5,000–30,000	5,000–15,000	DOE fee
Ongoing verification (periodically)	5,000–25,000	5,000–10,000	DOE fee
Share of proceeds to cover administration expenses (SOP-Admin)	The fee paid at registration is effectively an advance that will be 'trued up' against actual CERs issued over the crediting period (if different to emission reductions projected at registration). SOP-Admin is not capped.		EB fee
Total CDM-specific costs – operation phase	Variable – minimum 2% of CERs plus 5,000/year (if verification undertaken annually)		

[a]US$0.10/CER for the first 15,000 CERs/year and US$0.20/CER for any CERs above 15,000 CERs/year (max US$350,000). The minimum shown here has been calculated as 15,000 CERs/year over a single 7-year crediting period.

[b]As for large scale, unless total annual average emission reductions over the crediting period are below 15,000 t CO_2-e, in which case no fee is payable. Maximum calculated as 25,000 CERs/year over 7-year crediting period. Sop-Admins is a fee that PPs have to pay at issuance of CERs.

Chapter 10
The Identification of the CDM Potential in the Western Balkans Countries

Ivana Radulovic and Tatjana Kosec

10.1 Assessment of the General Carbon Potential

10.1.1 Introduction

The estimation of the carbon potential is a complex task that can be addressed from different aspects. A good starting point in completing this task is the preliminary estimation of the magnitude of the potential for the different opportunity areas like renewable energy, energy efficiency, landfill gas, carbon sequestration, etc, before starting the identification phase of specific projects within each opportunity area and the assessment of their specific carbon potential.

10.1.2 Renewable Energy Sector

The assessment of the carbon potential of renewable energy projects in a country takes into account potential power production from different energy sources on an annual basis. A source for this kind of information may be found in official documents like national energy strategy, national energy action plan, technology needs assessment, energy sector review, common country assessment or similar, developed by national institutions or international ones, as it generally happens for developing countries. If reliable information on the potential power production in the country from renewable energy sources is not available, it can be estimated based on data on potential production capacity that can be developed in the country itself. Once the potential power production in the country is identified, the carbon potential of renewable energy projects can be estimated taking into account an opportunity capture rate based on the local context and the country specific Carbon Emission

I. Radulovic
Member of the Task Force for Central and Eastern Europe, IMELS

T. Kosec
Member of the Task Force for Central and Eastern Europe, IMELS

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_10,

Factor [kgCO_2/kWh]. The estimation of the carbon potential should be disaggregated for different renewable energy sources, i.e. hydro power, solar energy, wind, biomass and geothermal, if possible (Table 10.1).

Table 10.1 Carbon potential (ktCO_{2eq} per year) in the renewable energy sector in four Western Balkan countries

	Albania	Macedonia	Montenegro	Serbia
Hydro power	1,200	405	350	800
Biomass	50	24	55	2,300
Solar	15	10	25	NA
Wind	42–62	NA	120	1,300
Geothermal	NA	150	NA	650

It is important to understand that the theoretical potential for each renewable energy source represents an upper limit, while the real economic, technical and implementation potentials never reach this upper limit and it should be taken into account when estimating the carbon potential. The estimation of the availability of biomass resources represents a good example of this observation.[1]

10.1.3 Energy Saving Measures

The assessment of the magnitude of the carbon potential of energy saving measures to be introduced in different types of industries, requires a collection of data related to energy efficiency in the respective local industries. Identification of the gap between local energy efficiency level and the world or European average provides an insight in the potential for improvement and, thereby, an insight in the carbon potential of energy efficiency measures to be introduced in the country. Again, an opportunity capture rate based on the local context should be taken into account. For the purpose of evaluating industrial energy efficiency in the country, documents like technology needs assessments or reports on environmental hot spots in the country, containing data on industrial process, efficiencies, fuel consumption, etc. can be very helpful. Table 10.2 presents estimations of the carbon potential of industrial energy efficiency improvement in the four selected Western Balkan countries (Albania, Macedonia, Montenegro, Serbia).

Table 10.2 Carbon potential (ktCO_{2eq} per year) of industrial energy efficiency improvement in the four Western Balkan countries

	Albania	Macedonia	Montenegro	Serbia
Energy efficiency in industry	180	625	270	2,000

[1] M. M. Hoogwijk (2004) *On the global and regional potential of renewable energy sources*. Ph.D. thesis, Utrecht University, Netherlands, 12 March, p 7.

10.1.4 Waste Sector

Estimations of the carbon potential in the waste sector, i.e. carbon potential of landfill gas recovery measures, rely on facts and figures related to waste management in the country. In that respect, the total amount of municipal solid waste that will be generated in the country should be assessed taking into consideration population and standard waste rate production. The assessment should involve all existing landfills and/or dumpsites, both the operating ones and the closed ones. Landfill gas production and recovery rate can be calculated based on the data on the quality of municipal solid waste. Information required to perform the assessment of the country's landfill gas production and recovery capacity can be found in documents like national waste strategy, environmental sector review, environmental performance review of the country prepared by UNECE, UN common country assessment, etc.

Since carbon potential in the waste sector includes not only gas flaring activities but also power generation when it is feasible, the potential power generation capacity should be assessed and translated into a carbon potential using country specific Carbon Emission Factor [$kgCO_2$/kWh]. It is important to take into account waste management practice in the country when estimating the carbon potential in the waste sector, because very often, especially in developing countries, theoretical potential significantly differs from the implementation potential, (e.g. in Albania the common practice at many landfill sites is to burn the waste in open air). Table 10.3 presents estimations of the carbon potential in the waste sector in the four Western Balkan countries.

Table 10.3 Carbon potential ($ktCO_{2eq}$ per year) in waste sector in the four Western Balkan countries

	Albania	Macedonia	Montenegro	Serbia
Waste sector	110	260	50	410

10.1.5 Carbon Sequestration

To assess the carbon potential of carbon sequestration (i.e. afforestation/reforestation activities in the country), specific information on the land that could be afforested/reforested under the CDM need to be obtained. The basic eligibility requirement under CDM rules for an afforestation/reforestation project is to involve land that has not been forested since 31 December 1989. In order to be able to distinguish between forested and non-forested land, the country has to have a definition of forest determined and communicated to the UNFCCC Secretariat. The additional criteria that affect the value of the implementation potential, like land tenure and human pressure, should also be taken into account. The information needed to estimate the carbon potential in the carbon sequestration area could be collected from specific strategic documents like the national forestry strategy of forest

management plans, but also from other strategic documents related to agriculture sector, national spatial plan and land use maps, if available. In order to translate the assessment of the land eligible to be afforested/reforested under the CDM into an assessment of the carbon potential, the average annual carbon removal factor [tCO_2/ha] (which is highly dependent on species, soil, climate conditions and previous land use activities), should be considered together with the capture rate based on the local context. To this effect, Table 10.4 presents estimations of carbon potential in the carbon sequestration area of activities in the four selected Western Balkan countries.

Table 10.4 Carbon potential ($ktCO_{2eq}$ per year) in carbon sequestration area of activities in the four Western Balkan countries

	Albania	Macedonia	Montenegro	Serbia
Carbon sequestration	620	630	20	500

10.2 Assessment of the Projects Based Carbon Potential

10.2.1 The Three Approaches for Assessment

Building on the data gathered on the carbon potential in the various sectors of the four Western Balkan countries under scrutiny (Albania, Macedonia, Montenegro and Serbia), the Italian Task Force for Central and South Eastern Europe performed an assessment of the project based carbon potential in the same countries.

Such an assessment was made on the basis of three different approaches. The first one was based on the data collected from the different strategic documents and governmental action plans, describing the concrete projects ideas which could have a potential to be developed as CDM ones. This step was followed up by direct contact with the related project owners interested in the participation in the project development through the CDM.

The second approach in the CDM projects identification included a direct cooperation in the joint CDM project ideas clarification with the representatives of the different public and private institutions, such as the relevant ministries, municipalities, public utilities, local private and public different industries, national agencies etc. The preliminary information collected at the meetings and site visits represented the starting point to develop the potential project's ideas. This was a background for the preparation of the questionnaires for the different project types mainly related to: electricity and heat generation from renewable energy sources, fuel switching from fuels with higher carbon content to fuels with less carbon content (from coal or heavy fuel oil to natural gas or biomass), energy savings in different industrial processes (steel, aluminium, ferroalloys, cement industries etc.) and building sector, landfill and biogas capture from waste and manure treatments, afforestation activities, underground coal gasification, etc.

For particular industries such as steel, aluminium, ferroalloys and cement, a few site visits were performed in order to get more detailed assessment of the process related data, including investigations of the related facilities and installations, energy audits and views exchange with the plant's engineers. The questionnaires were prepared depending on the data needed for particular projects. Each of them contained different sections: some of them included general information on the project owner and core business, the current situation of the referred project location, the annual energy consumption and production balance; some other sections were directly related to the project activity and refer to the possible energy savings, the amount of energy to be switched, the renewable energy potential to be used for the electricity or/and heat production, the land to be afforested, the tree species selected for afforestation and their rotation period, etc. The submitted data were a good input for the preliminary estimation of the GHG offset for the referred project activity.

Since the project identification is a learning by doing process and the mentioned approaches in the projects identification are quite time consuming, also a third approach in the CDM projects origination has been followed. Under such an approach, the local counterpart published the Call for the CDM project ideas for local project proponents. The project proponents applying for the Call submitted the main information regarding the project activity such as: the description of the project location, the existing situation within the project location, the description of the CDM project activity with all necessary technical data, the status of the project development and the possible investment costs. All this information has been used for the preparation of the Project Idea Note (PIN) as a first step in the CDM project cycle. Since all mentioned steps in the identification of the possible CDM projects have been performed under the bilateral agreement with the local relevant ministries, which are in most cases directly related to the Designated National Authorities too, the results have been used as the basis for the development of the CDM portfolio for each country: Albania, Macedonia, Montenegro and Serbia.[2] Each portfolio comprises all relevant information about the country and the scouted CDM projects.

The number of the potential CDM projects concerning the possible GHGs emissions reduction, varies between the countries in the region. However, the sectors concerned are more or less the same ones in the various countries and they include: use of the existing renewable energy potential; energy savings in industry, building and public sectors; methane capture in waste management; manure treatment and pit mines; fuel switching and natural gas based cogeneration, afforestration, etc.

[2] The portfolios are available at http://www2.minambiente.it/pdf_www2/CDM_Portfolio_Balcani_2007/CDM_Portfolio_Albania/cdm_portfolio_albania_EN_07_10_07.pdf; http://www2.minambiente.it/pdf_www2/CDM_Portfolio_Balcani_2007/CDM_Portfolio_Macedonia/CDM_Portfolio_Macedonia_280407_EN.pdf; http://www2.minambiente.it/pdf_www2/CDM_Portfolio_Balcani_2007/CDM_Portfolio_Montenegro/CDM_Portfolio_Montenegro_070507_EN.pdf; http://www2.minambiente.it/pdf_www2/CDM_Portfolio_Balcani_2007/CDM_Portfolio_Serbia/CDM_Portfolio_Serbia_070507_EN.pdf.

10.2.2 The Carbon Potential Within the Portfolios

The portfolios of the CDM projects for the four selected Western Balkan countries comprise 63 potential projects in total and by country: Albania (11), Macedonia (14), Montenegro (12) and Serbia (24). The overall carbon potential of those projects has been preliminarily estimated at the value of approx. 2,700 $ktCO_{2eq}$ as presented in the Table 10.5.

Within the selected Western Balkan countries, the largest carbon potential exists in the big industrial plants: one aluminium plant, three steel mills, one cement factory and two refineries. In general, all those industries are characterized by a high energy consumption, with mainly out-dated and non energy efficient technologies and a lack of an adequate environmental protection. Implementation of new cleaner technologies would result in both energy savings and environmental protection, at the same time using the added value of the carbon credits. The project activities within the mentioned industrial plants are mainly related to: heat recovery from processing waste gases for the generation of both electricity and heat; fuel switching from coal and heavy fuel oil to natural gas; boilers change or recuperation; furnaces optimisation or change with new ones; optimisation of the transformer stations; automation of the particular industrial process parts; rehabilitation of the existing district heating pipelines; energy efficiency in lighting; change of the existing burners with new ones, etc. Should all the foreseen project activities be concretely realized, they could lead to approximately 700 $ktCO_{2eq}$ of GHG reductions per year. The recognized energy savings in other sectors which are mainly related to the energy efficiency in street lighting, building sector and in distribution and transmission power network could result in 80 $ktCO_{2eq}$ in total.

The use of renewable energy for electricity generation depends on the specific potential for each country and is mainly related to biomass and biogas/landfill gas utilization. The use of other renewable energy sources under the CDM is a bit limited by the complicated national administrative procedure particularly in the case of hydro and wind energy. This procedure differs from country to country. The feasibility of such kind of projects as a CDM is influenced by the existing incentive mechanism for electricity generation from renewable energy within the country too. Within the four portfolios, there are 15 projects recognized so far with

Table 10.5 Assessment of the carbon potential from identified CDM projects in the four Western Balkan countries

	Albania	Macedonia	Montenegro	Serbia
Sector type	[$ktCO_{2eq}$ per year]			
Energy savings	205	185	280	110
Renewable energy	60	70	48	130
Methane capture	27	122	48	220
Carbon sequestration	208	567	4.8	3.6
PFCs capture	–	–	440	–
Total	500	945	770	465

the total installed capacity of 75.3 MW and possible annual electricity generation of 275 GWh resulting in 270 $ktCO_{2eq}$.

In the case of methane capture projects, there are 24 related projects with the total annual GHG emissions reduction estimated in the approximately value of 220 $ktCO_{2eq}$. The project activities are mainly related to landfill gas capture and its flaring with or without energy recovery, pit gas capture from coal mines, biogas capture from manure treatment as well as industrial and municipal wastewater treatment plants.

The last group of scouted projects are related to carbon sinks, i.e. mainly to the afforestation activities (5 projects in total with the possible annual GHG offset of 785 $ktCO_{2eq}$).

10.3 Conclusion

The preliminary assessment of the general carbon potential in the four Western Balkan countries analised has been estimated and the magnitude of that potential has a value of approximately 13,000 $ktCO_{2eq}$ on the annual basis just taking into account the above-mentioned opportunity areas: renewable energy, energy efficiency in industry, waste management and carbon sequestration. The other opportunity areas, such as energy savings potential in the power and transport sectors were not considered at this stage. By adding them to the analyses, the total carbon potential could reach the value of more than 30,000 $ktCO_{2eq}$ per year. The highest potential has been recognized in the exploitation of renewable energy, particularly hydro energy and biomass, with the carbon potential of approximately 7,500 $ktCO_{2eq}$ per year. Within the portfolios, the identification of the specific projects within each area has been done too. There are 63 projects identified so far with the total carbon potential of 2,700 $ktCO_{2eq}$ representing approximately 20% of the general carbon potential of the four selected Western Balkan countries.

Section II
Technical Experiences on CDM Implementation in the Western Balkans

Chapter 11
CDM Projects Experience in Albania

Tatjana Kosec, Radmila Vastelica Sutic and Ivana Radulovic

11.1 Introduction

The Republic of Albania ratified the United National Framework Convention on Climate Change (UNFCCC) in October 1994 and the Kyoto Protocol in December 2004[1] as a non-Annex I party to the Convention. In 2005, the Ministry of Environment, Forests and Water Administration has been designated to the Secretariat of the UNFCCC as a Designated National Authority (DNA) for the CDM.

Taking into account that two basic preconditions for implementation of the Clean Development Mechanism in the country are fulfilled, it could be concluded that Albania holds the necessary potential to be considered an attractive opportunity in terms of carbon finance. However, due to the low mitigation potential and relatively bad investment climate, initially Albania was labeled by some analysts as non-attractive for non-sink CDM projects.[2] Nevertheless, the experience of the Task Force for Central and Eastern Europe, Ministry for Environment, Land and Sea of Italy, shows that there is a significant interest in investing in CDM projects in this country.

11.2 Assessment of the Republic of Albania Carbon Potential

Albania is a country heavily relying on hydropower in its domestic electricity production, with around 96% coming from large hydro power plants, complemented by diesel fueled generators during the periods of decreased power supply.

T. Kosec
Member of the Task Force for Central and Eastern Europe, IMELS

R. Vlastelica Sutic
Member of the Task Force for Central and Eastern Europe, IMELS

I. Radulovic
Member of the Task Force for Central and Eastern Europe, IMELS

[1] Law No. 9334 of 16 December 2004.

[2] M. Jung, *Host country attractiveness for CDM non-sink projects 2005*; HWWA Discussion Paper 312, 2005.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_11,

In order to be able to meet current and future demand for electricity and to reduce the share of imported electricity, the country has chosen to rely more on fossil fuels (primarily gas) and thereby reduce current and potential load shedding (Ministry of Industry and Energy, National Agency of Energy 2003). However, the current situation in power sector results in a relatively low Carbon Emission Factor (CEF) value of the national grid.

Generally, two approaches can be used to calculate the Carbon Emission Factor for the Albanian national grid. The first approach is based on historical electricity production and predicts that future additional demand will be covered by the imported electricity. The second approach is based on future national grid development and for this one two scenarios are presented in this paper.

In 2007, hydro power production in Albania was 2,874 GWh, two times lower than in 2006 (Fig. 11.1), while thermal power plants produced only 72 GWh in the same year. On the other hand, Albanian Institute of Statistics reported that 47.1% of electricity demand in 2007 was covered by imported electricity. It is expected that from 2009, all existing installed power plants will work with maximum capacity. It may be reasonably assumed that electricity production is not going to maintain its current latitude in the future due to its high reliance on weather conditions, but in order to simplify the calculations, this assumption has not been taken into account.

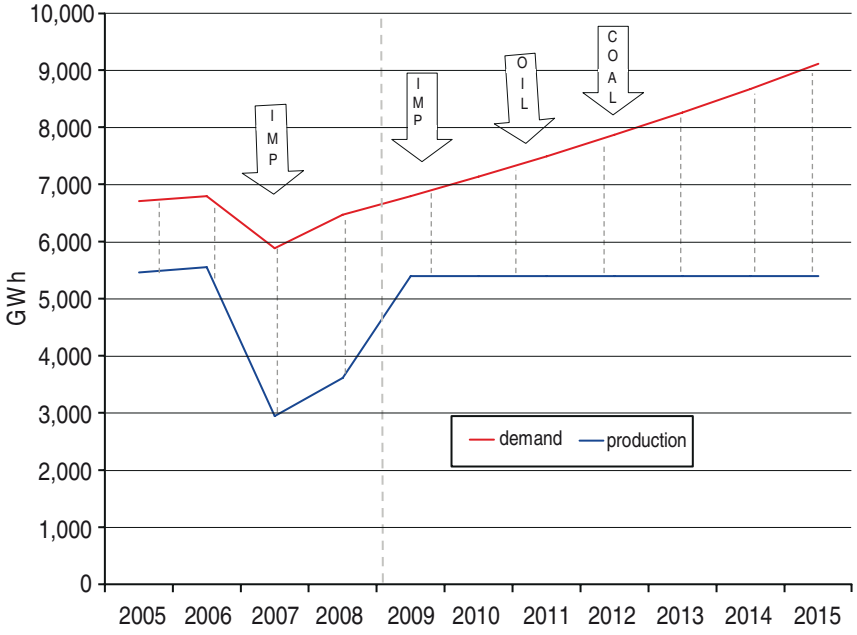

Fig. 11.1 Power production and demand based on the data from the National Institute of Statistics (Source: National Institute of Statistics, Albania)

In 2008, consumption had a 13.3% increase compared to the first 6 months of 2007. It is expected that the annual growth rate of electricity demand after 2009 will be 5% per year (Fig. 11.1), compared to the current electricity generation from existing power plants. Interruption in electricity demand in the period 2006–2007 (Fig. 11.1) could be explained with daily electricity cut-offs, which have occurred during this period, while the electricity deficit was covered by import.

Taking into account the historical production of electricity and choosing the first approach, the calculated CEF for the Albanian grid accounts for less than 0.05 tCO_2eq/MWh (Fig. 11.2).

The construction of new thermal power plants would reduce country's power deficit and decrease weather conditions dependency. If 50% of electricity deficit in 2009 would be covered by a new, heavy fuel oil fired thermal power plant and the rest of deficit would be covered with imported electricity, and if the power production in the thermal power plants would increase every following year by 10%, the estimated CEF for Albanian grid would be around 0.42–0.52 tCO_2eq/MWh (Fig. 11.2). The planned commission of power generation from the new thermal power plant in Vlore and the reconstructed thermal power plant of Fier supports this assumption.[3]

On the other hand, if the total electricity deficit would be covered by a new coal fired thermal power plant, estimated CEF for Albanian grid would be 0.77 tCO_2eq/MWh (Fig. 11.2).

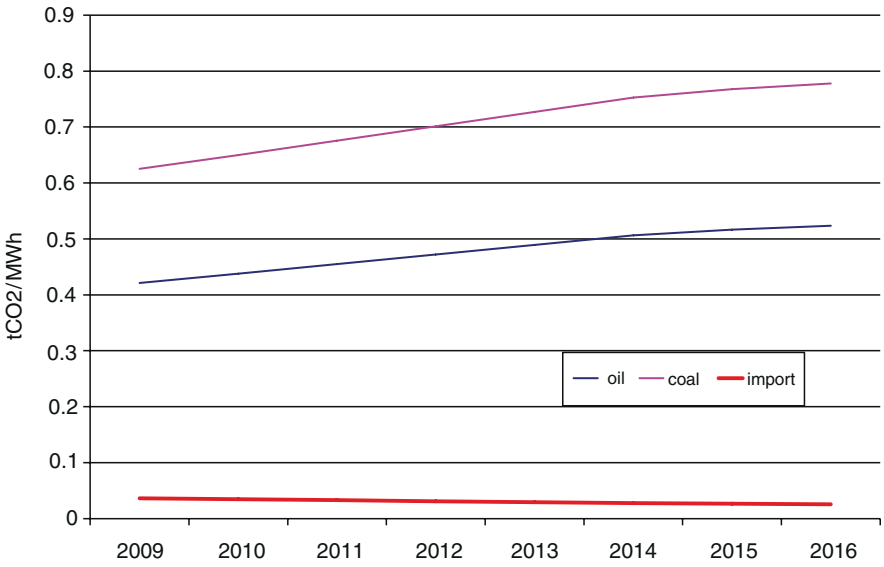

Fig. 11.2 Carbon emission factor in relation to different scenarios of electricity deficit cover

[3] Electricity Regulatory Entity, Annual Report, 2007.

11.3 Assessment of the Republic of Albania Project Potential Within the Portfolio

11.3.1 The Overall Carbon Potential

Under the framework of the cooperation between the Ministry for Environment, Land and Sea of Italy and the Ministry of Environment, Forests and Water Administration of Albania, the CDM carbon potential in different sectors has been calculated in the so-called portfolio,[4] using simplified back-of-the envelope methods based on an opportunity capture rate adjusted to the local context. Figure 11.3 shows the shares of different sectors in the overall CDM carbon potential, estimated on the basis of the official local reports and the strategy papers available.

Figure 11.3 clearly demonstrates that most of the CDM projects could be expected in the areas of hydro power, energy efficiency and carbon sequestration. The high number of expected hydro power CDM projects is in line with the current overall picture of registered CDM projects. On the other hand, although landfill

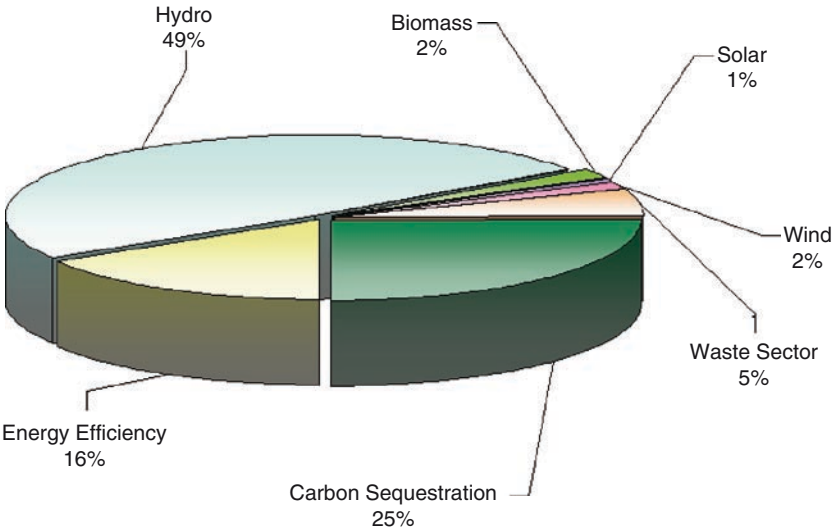

Fig. 11.3 Shares of different sectors in the overall CDM carbon potential

[4] Italian Ministry for the Environment, Land and Sea, *Assessment of the Projects Potential in the fields of renewable Energy Sources, Energy Efficiency, and Forestry Management in the Framework of Clean Development Mechanism of the Kyoto Protocol in Albania* (Portfolio for Albania), 2007. The portfolio is available at http://www2.minambiente.it/pdf_www2/CDM_Portfolio_Balcani_2007/CDM_Portfolio_Albania/cdm_portfolio_albania_EN_07_10_07.pdf.

CDM projects participate with a significant share in the overall picture of registered CDM projects, also due to the high impact of CDM on the Internal Rate of Return (IRR) of this type of projects (see Table 11.1), the carbon potential of landfill projects in Albania is quite low. The explanation for this can be found in the low opportunity capture rate.

Among the 11 potential CDM projects that have been identified within the Republic of Albania portfolio,[5] the shares of GHG reduction potentials of these projects are shown in Fig. 11.4.

As shown in Fig. 11.4, the energy efficiency projects give a major contribution to the GHG emissions reductions, followed by hydro power and carbon sequestration projects. All that is in line with overall potential, estimated based on local reports and policy documents.

The interest of companies in developing and implementing the identified CDM projects is presented in Fig. 11.5.

If the IRR, as an indicator of the financial feasibility, and the impact of the CDM on the IRR of the hydro power projects (Table 11.1) would be taken into account, one might expect a distribution of project types' shares different from the one shown in Fig. 11.5.

The lower margins of ranges presented in Table 11.1 correspond to the crediting period of 7 years, while the upper margins correspond to the crediting period of 21 years, except for the carbon sequestration projects for which the crediting period varies from 20 to 60 years.

The results presented in Fig. 11.5 show that majority of the interests expressed by potential investors refer to the hydro power and landfill projects. Considering such a significant interest expressed in hydropower projects, it could be concluded that the disadvantage of the country's relatively low CEF is probably overcome by the fact that this technology is the most mature one and therefore less risky, requiring a lower IRR.

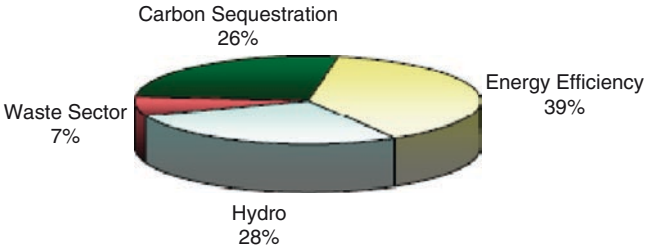

Fig. 11.4 Shares of GHG reduction potentials of the 11 CDM projects identified within four areas

[5] On the portfolio see Chapter 10 by I. Radulovic and T. Kosec, *The Identification of the CDM Potential in the Western Balkans*.

Table 11.1 Impact of carbon finance on average IRR (based on preliminary data of the World Bank Prototype Carbon Fund 2002/2006)

Sector	Carbon finance impact (ΔIRR)
Landfill	5.5–50
Hydro power	0.8–2.6
Biomass	2–8
Wind	1–1.3
Energy efficiency	~2
Carbon sequestration	0.5–7

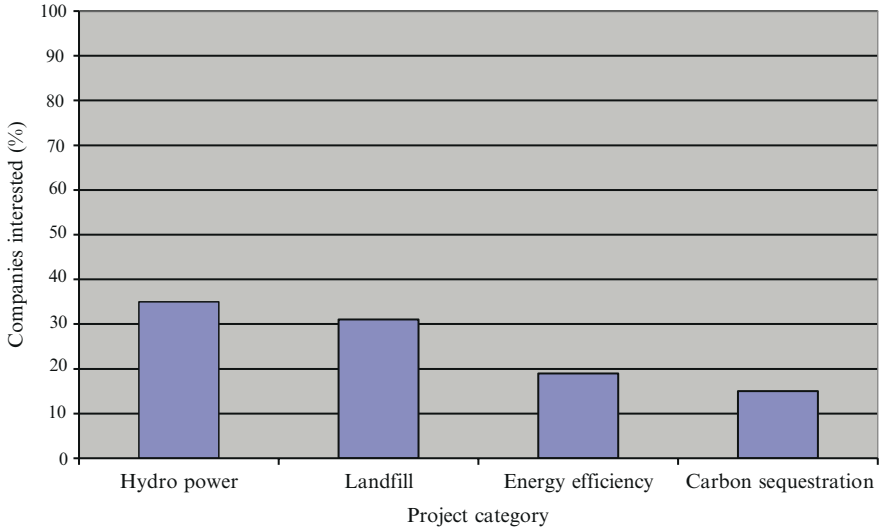

Fig. 11.5 Interest expressed in development and implementation of the identified CDM projects

11.3.2 The Energy Sector

Concerning CDM energy efficiency projects in Albania, the main potential lies in heavy power and fossil fuel consuming production technologies with low efficiency in the industrial sector, as well as in inefficient power and fossil fuel based heating systems in the building sector. Since the year 2000, around 53% of total annual electricity consumption in the country is being consumed by households, while industry holds the second place with around 20% of total annual electricity consumption in the country.[6] The relatively low CEF value for the national grid diminishes, to certain extent, the significance of these figures for carbon potentials in the

[6] Ministry of Industry and Energy, National Agency of Energy, National Strategy of Energy, 2003.

country. However, taking into account that new additions to the Albanian power generation sector indicate shifting from large hydro to thermal power plants, due to the necessity of the country to stabilize electricity supply, the importance of these figures could increase in the recent future.

11.3.3 The Carbon Sequestration

In regard to the carbon sequestration potential of Albania, it has been assessed that 61% of the total country area is eligible for afforestation/reforestation under the CDM, out of which 62% is suitable for human induced natural revegetation and 38% for plantations.[7] However, due to the local conditions and circumstances, to the opportunity capture rate for this type of project, it cannot be assigned the maximum value. Nevertheless, the first CDM project hosted by Albania, which entered in the CDM project cycle, is named "Assisted Natural Regeneration of Degraded Lands in Albania" and it has been available for public comments, within the validation phase of the project cycle, until December 2008.

11.3.4 The Small Hydropower Plants

Albania is a country with excellent possibilities for hydropower projects. The total installed power generation capacity in the country, up to date, is 1,659 and 1,446 MW relate to hydropower. The average output from a hydropower plant is 4,000 GWh, while the total hydropower reserves are estimated to be around 3,000 MW of installed capacity with potential annual generation that may reach 10 TWh. Although the country, in its power generation, is substantially relying on large hydro power plants, the utilization of small hydro power (SHPP) technology has not yet been so heavily exploited. Nevertheless, the national energy strategy foresees an increase in small hydro power production from 0.5% in 2006 to 3.3% in 2017. In terms of possible new locations, there is a potential to install a total capacity of 140 MW in 100 locations, and for 20 of these locations it has already been awarded the relative concession. However, no SHPP has been constructed in these locations up to date.

A process of drafting a new SHPP's Concession Law in the country is underway. Private operation of SHPPs in Albania began in 1999 with the enactment of the Law on privatization of state assets in the power sector. The Albanian Electricity Regulatory Entity (ERE) sets purchasing tariffs, using the approved methodology for calculation of a uniform tariff for the existing SHPPs, both for those privatized

[7] Agrotec Consortium. Assessment of opportunities and operational implications for developing additional carbon financing activities, Report, 2005.

and for those given through concessions. The price for 2008 has been set to 6.50 Lek/kWh (€0.053/kWh). The Concession Law No. 9663/2006 and the Government Decree No. 19/2007 on procedures for awarding the concession contracts stipulate that for SHPPs with installed capacity less than 10 MW a long term Power Purchase Agreement (PPA) will be signed with the public supplier and a uniform feed-in tariff for these plants will be approved by ERE. The ERE is working to develop a standard long term PPA for small power producers, with a term of 15 years, providing additional guarantees for private investors.

Apart from the fact that the prevailing practice in utilization of hydropower in the country has been constructing of large hydro power plants (Fig. 11.6), in favor of the additionality for the SHPP type of technologies stands also the financial feasibility of this type of projects when implemented in Albania.

Local concessionaires wishing to receive financial aid from the Albanian banks in order to realize the SHPP projects, still face many obstacles.

With regard to foreign investments, the amount of Foreign Direct Investment (FDI) per capita is among the lowest in the region.[8] The country is working on improving an investment contest for renewable energy projects in general and the new regulatory framework in preparation should reduce market risk and make it more attractive for private investments. As a direct support for the use of renewable energy sources, the country is determined to set a fix price of selling electricity, based on import price of previous year. Also, producers of electricity from renewable energy sources will have priority access for their connection in the power network and will be exempted from custom duties for equipments and machineries for generation purposes. In addition to all the efforts the country is making in order to stimulate use of clean technologies, there are also carbon revenues to be taken into account, which remain the leading driving mechanism for CDM project development.

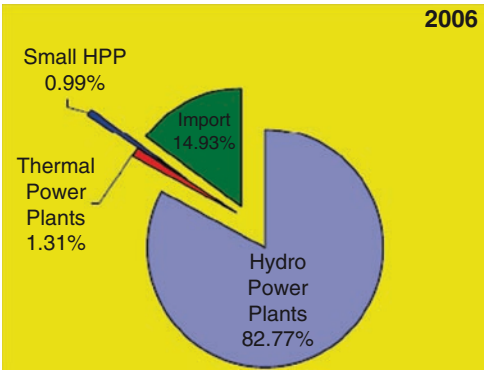

Fig. 11.6 Power supply in 2006 (Source: Baseline Study of Albania's Power Sector for Clean Development Mechanism, Dr. Besim Islami and Dr. Johannes Laubach)

[8] US Department of State. Investment Climate Statement, 2006.

11.3.5 The Waste Sector

The second most attractive sector (Fig. 11.5) from CDM point of view is turned out to be the waste sector. This is essentially due to the fact that carbon revenues from this type of project have a significant impact on the project's financial feasibility (Table 11.1). However, the absence of proper waste management, control and monitoring, and the poor conditions of the existing landfill sites with unsatisfactory environmental conditions (UNECE 2002), increase the cost of investment needed to develop and implement the CDM project of this type in the country and reduce the positive impact of carbon revenues on financial feasibility of the project.

11.3.6 Conclusion

A significant interest has been expressed also for energy efficiency type of projects, both in building and industrial sector (Fig. 11.5). However, in general, energy efficiency projects have a relatively high IRR, both with or without carbon revenues. Therefore, considering that many of the energy efficiency projects are already financially feasible, especially in the industry sector, the additionality criteria, for the project to be developed as CDM, cannot be fulfilled. In addition to that, the relatively limited spectrum of the registered baseline methodologies further complicates the development of this type of projects. Nevertheless, the introduction of the Programmatic CDM concept into the system tends to attract more interest and facilitate the development of energy efficiency type of projects.

The overall impression is that considering the alternatives for an investor, in terms of investing surplus capital in business as usual activities or in the financial market, and considering that the development of a new regulatory framework for the utilization of renewable energy sources, which should considerably reduce the investment risk in the country, is in progress, carbon financing in Albania is becoming an attractive option.

Chapter 12
CDM Projects Experience in Macedonia*

Lara Kerkez Bubalo

12.1 Introduction

Being aware of the importance of addressing climate change and of the opportunities offered by the Clean Development Mechanism (CDM), the Republic of Macedonia has been the first country of the Western Balkan region to ratify the Kyoto Protocol in 2004. Since the ratification, the Republic of Macedonia started working on the enhancement of the institutional and individual capacities for the implementation of the Protocol. The Designated National Authority in Republic of Macedonia was established within the Ministry of Environment and Physical Planning amending the Law on Environment in March 2007[1] thus fulfilling the CDM participation requirements.

The cooperation between the Republic of Macedonia and the Republic of Italy in the field of Environment and Sustainable Development, with special attention to the Kyoto Protocol, began in August 2005 as a part of an institutional exchange programme. The cooperation was *inter alia*, focusing on the assessment of projects' potential in the framework of the CDM through the:

- Assessment of the carbon potential
- Identification of concrete projects opportunities

thus aiming at supporting the implementation of projects under the CDM and provide emission reductions as a final objective.

L. Kerkez Bubalo
Member of the Task Force for Central and Eastern Europe, IMELS

* On the issue of the use of the name Republic of Macedonia and the pending controversy under International Law see *supra* in this volume, note 1 in the Introduction.

[1] Law on Environment, Official Gazette of the Republic of Macedonia No. 24/2007.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_12,

12.2 The Assessment of the Macedonia Carbon Potential

At the beginning of 2007, the work on the two aforementioned issues was finished, and presented to the public, as the Republic of Macedonia portfolio: "Assessment of the projects' potential in the fields of renewable energy sources, energy efficiency and forestry management, in the framework of Clean Development Mechanism of the Kyoto Protocol in the Republic of Macedonia".[2] The Assessment showed that the largest potential, when dealing with GHG emission reductions lays in the energy sector, refers to the energy efficiency measures and reaches 2,440 $ktCO_2$ per annum. Besides, a carbon potential of 630 $ktCO_2$ per annum has been estimated in the sector of Land Use, Land Use Change and Forestry (LULUCF). Regarding Renewable Energy Sector (RES), the largest potential has been identified in the hydro energy sector and amounts 405 $ktCO_2$ on an annual basis. With the addition of geothermal, solar and wood biomass energy, the total RES potential reaches 600 $ktCO_2$ per annum. Analysis of the waste sector, taking into account both municipal solid waste (MSW) and animal waste management systems (AWMS), yielded the sector potential of 260 $ktCO_2$ per annum. The overall identified sectors potential is illustrated in Fig. 12.1.

Besides determining the carbon credit potential, the Assessment identified 15 potential projects, five in MSW handling, three in AWMS sector, three in RES, two in energy efficiency and per one potential project in fuel switch and afforestration segment. The selected projects are listed below, while the distribution of estimated

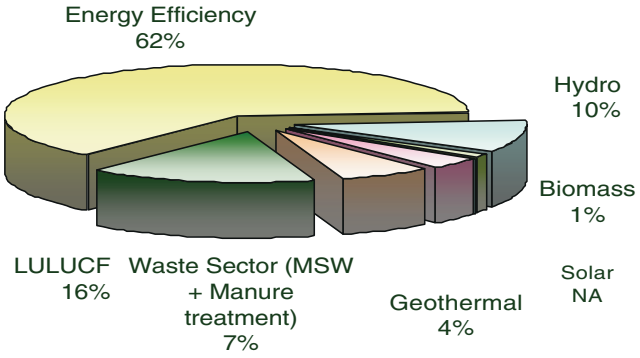

Fig. 12.1 Identified sectors potential (assessment of the projects' potential in the fields of renewable energy sources, energy efficiency and forestry management, in the framework of Clean Development Mechanism of the Kyoto Protocol in the Republic of Macedonia)

[2] Republic of Italy, Ministry for Environment, Land and Sea, Assessment of the projects' potential in the fields of renewable energy sources, energy efficiency and forestry management, in the framework of Clean Development Mechanism of the Kyoto Protocol in the Republic of Macedonia (CDM Portfolio for Macedonia), May 2007.

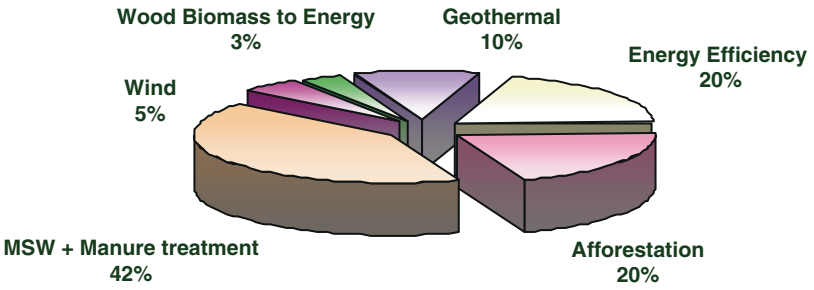

Fig. 12.2 Distribution of estimated emission reduction that could be reached through the project implementation

emission reduction that could be reached through the project implementation is shown in Fig. 12.2.

1. "DRISLA" Dump Site – LFG Recovery and Flaring
2. "KRASTA" Dump Site – LFG Recovery and Flaring
3. "MEGLENCI" Dump Site – LFG Recovery and Flaring
4. "ŠAPKAR" Dump Site – LFG Recovery and Flaring
5. Bundling of STIP, KOCANI and VINICA Dump Sites – GHG Reduction through gas capture and flaring
6. AWMS Methane Recovery Project for the Farm "EDINSTVO" Tetovo
7. AWMS Methane Recovery Project "ŽITO VARDAR"
8. AWMS Methane Recovery Project for the Farm "AGRIA GROUP" DOO Veles
9. Wind Project "SVETI NIKOLE"
10. Wood Biomass to Energy
11. Geothermal District Heating Scheme "Bansko"
12. Energy Efficiency Improvements in Clinical Centre in Skopje
13. Energy Efficiency in Street Lighting in Macedonia
14. Fuel Switch from Residual Fuel Oil to Natural Gas in Heating Plant "Zapad"
15. Afforestation in the Region of Central Macedonia

12.3 The Call for Expression of Interest

In continuing the activities towards the overall objective – namely supporting the achievement of emission reductions through CDM projects implementation – the following step consisted in the publication of the Call for expression of interest for co-financing of the PDD/feasibility studies preparation for CDM projects. The goal of the call was to select and co-finance companies that have the technical, financial and administrative capacities to develop feasibility studies and/or PDDs as a first step within the CDM development process for projects presented in Assessment.

The Call for Expression of Interest was issued by the Macedonian Ministry of Environment and Physical Planning through one phase procurement procedure in June 2007 and was open for 1 month. The Call was conducted pursuant the procedure and the criteria set by the Joint Committee and provided in the Appendix I to the Annex I to the Memorandum of Understanding between the Italian Ministry for the Environment, Land and Sea and the Macedonian Ministry of Environment and Physical Planning and in accordance with the relevant EC applicable legislation.[3] Candidates were invited to express their interest in preparing feasibility study and/or PDD for a specific project and to justify their administrative, technical and financial capacity, as well as to identify the sustainable development criteria that will be positively affected during the realization of the project.

The Technical Working Group, established by decision of the Joint Committee between the Italian Ministry for Environment Land and Sea and the Macedonian Ministry of Environment and Physical Planning reviewed the documentation received from candidates in terms of meeting required criteria. More precisely, the Technical Working Group received 14 offers, where the largest interest was shown for projects in waste sector. In applying the aforementioned procedure set by the Joint Committee, the Technical Working Group proposed to the Joint Committee the companies to be selected for co-financing in the preparation of the feasibility studies and/or PDDs.

Following the selection of the companies, the Macedonian Ministry of Environment and Physical Planning stipulated the contracts for preparation of the feasibility studies and/or PDDs.

12.4 The Learning by Doing in Preparation of the PDDs

Once all the activities related to the Call for expression of interest were concluded, some interesting issues related to the development of the PDDs arose. Two of them deserve a particular interest.

The first one relates to the relationship of the Environmental Impact Assessment (EIA) with the PDD evaluation procedure. In the case of a project which ought to be subject to an EIA according to the relevant legislation, it does not suffice to state in the PDD that, according to the baseline scenario, no negative environmental impact would arise from the project activity.

However, on the basis of the Macedonian CDM projects review and approval procedures,[4] one of the information required by the DNA is the letter from the

[3] Directive 2004/18/EC of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, in OJ L134 of 30 April 2004, p. 114.

[4] Annex II of the Macedonian national strategy for clean development mechanism of the Republic of Macedonia for the first commitment period of the Kyoto Protocol 2008–2012, UNDP, February, 2007.

MoEPP, stating whether an EIA is required, depending on the project type. If an EIA is needed, the letter of approval will be conditional on the outcome of the EIA. In addition to that, according to the provisions of the Law on Environment, for some projects where the EIA study is not mandatory, the Ministry may nevertheless require to perform it. A decision about such an issue has to be reached by the competent authority upon receiving the Letter of notification of the proposed project. Therefore, it may be concluded that, before sending the draft PDD to a validator (whose task inter alia is to check if all required documentation is presented and if the project is in compliance with national legislation), the project proponent should firstly address the EIA issue. Besides, in order to get a positive validation report from the validator and the Letter of Approval from the DNA, it is necessary to hold the final construction permits for the project. The whole procedure may be time-consuming, therefore it would be recommendable to start the EIA procedure right after the initiation of a PPD preparation.

The second relevant issue regards the fact that the existing Macedonian legislation does not envisage incentives for electricity production from biomass combustion.

According to the Law on Energy,[5] the Energy Agency of the Republic of Macedonia (EARM) holds the registry of guarantees of origin for electricity produced from renewable energy resources and from high-efficiency cogeneration facilities in the Republic of Macedonia. The certification entitles the electricity producer to qualify as a preferential producer of electricity for the volume of electricity produced by renewable resources or high-efficiency cogeneration and to receive guarantees of origin for the electricity so produced. According to Article 141 of such a Law, the Regulatory Commission shall establish preferential tariffs for electricity sold by preferential producers of electricity and producers of electricity from high-efficiency cogeneration facilities. Unfortunately, until now, the Regulatory Commission established only preferential tariffs of 11 €cent/kWh for electricity from biogas produced from biomass in facilities with installed capacity over 0.5 MW, without taking into consideration the energy produced only through biomass combustion or biomass cogeneration.

The absence of a clear tariff policy for electricity produced from renewable sources represents a threat for this type of projects and a substantial limit to the introduction of modern biomass-based technologies for energy generation and cogeneration in Macedonia. It is important to stress that this kind of projects have a high carbon credit potential and are very attractive for foreign investors. According to the latest indications, it is reasonable to expect that the electricity production from biomass would be granted a preferential tariff in the mid-term, while the production of the technical steam would be treated as an additional activity and will not be subject to the preferential tariff.

[5]Law on energy, Official Gazette of the Republic of Macedonia No. 63/2006.

12.5 Conclusion

After three years of developing bilateral cooperation between the Republic of Macedonia and Republic of Italy in the field of CDM, it might be said that the activities are intensifying and are related to different sectors.

Spreading the knowledge about the Kyoto Protocol and its flexible mechanisms with particular attention to CDM was a pioneer work done by the Italian Ministry, which was timely recognized as a favorable opportunity for improvements in the environmental sector, both by the State administration and private sector. Both sides were ready to cooperate, which further yielded significant bilateral experience in the field of CDM and brought to the development of several PDDs. The gained experience will be of a very relevant importance for further work in scouting and developing new project proposals and preparation of new PDDs, whose final result might consist in significant emission reductions.

Chapter 13
CDM Projects Experience in Montenegro

Ivana Radulovic

13.1 Introduction

The Republic of Montenegro, as a Non-Annex I country without any commitments to GHG emissions reductions, has shown nonetheless its open willingness in addressing the climate change challenges.[1] So far, Montenegro has established the Designated National Authority, adopted the National Sustainable Development Strategy and defined the rules and procedures for the approval of the CDM projects.[2] The current investments contest is encouraging, since financial and investment risks have been reduced and the country may be considered in transition to the market economy. These circumstances represent a good basis to attract and create a more efficient start up of the first CDM projects within the country.

The experience gained so far in the development of CDM projects in Montenegro has been mainly focused on the scouting of the project ideas followed by the feasibility studies and the PDDs preparation. It is worth mentioning that despite Montenegro is a small country it has an interesting potential to host different types of CDM projects, possibly contributing in a positive way to the abatement of the global impact of the climate change.

I. Radulovic
Task Force for Central and Eastern Europe, IMELS

[1] *H. E. Mr. Nebojsa Kaludjerovic, permanent representative of Montenegro to the United Nations at the general debate "Addressing Climate Change: The United Nation and the World at Work", held in February, 2008, stated the following: "Montenegro believes that for developing countries CDM is the key instrument for confronting the challenges of climate change …".*

[2] *See the rules and procedures for the approval of the CDM projects in www.vlada.cg.yu.*

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_13,

13.2 The Assessment of the Republic of Montenegro Carbon Potential

13.2.1 The Relevant Sectors

The assessment of the GHG emissions reduction potential has been carried out taking into consideration different strategic documents and the National GHG inventory. A few different scenarios have been considered, mainly on the basis of the governmental plans especially related to the power sector. The sectors concerned were: power generation, industry, residential and commercial sectors, tourism and transport. Some reference data have been taken from the GHG National Inventory. Energy related sectors in Montenegro, such as power supply and energy savings in the big industries, have been recognized as one of the crucial sectors in its fast development process, leading to macro economical, social and environmental benefits.

13.2.2 The Primary Energy Potential

The energy production is one of the main national priorities. The power system of Montenegro consists of two large hydro power plants: HPP Piva and HPP Perucica with 344 and 307 MW of installed capacity respectively, one large thermal power plant TPP Pljevlja I of 210 MW and nine small hydro power plants of 9 MW in total. Therefore, the total installed capacity of the power system is 868 MW (75.8% in HPP, and 24.2% in TPP) with the electricity generation share of 60% by HPPs and 40% by TPP.[3]

The total electricity generation for the period of 2005–2007 is presented in Table 13.1. The electricity import has reached the maximum level of 2,420 GWh in 2007 representing almost 54% of total energy demand for that year.

Table 13.1 The power system and electricity generation balance in Montenegro for the period 2005–2007

		Electricity generation (GWh)		
Electricity source	Installed capacity (MW)	2005	2006	2007
TPP Pljevlja I	210	899.44	1,094.42	786.30
HPP Perucica	307	1,018.38	842.18	757.41
HPP Piva	344	807.35	884.06	522.73
SHPPs	9	21.00	21.00	21.00
Import	–	1,789.69	1,687.10	2,419.98

[3] *Ministry for Economic Development (MED), 2007, Energy development strategy of the Republic of Montenegro by 2025 (final document), June 2007, Ljubljana.*

Some actions for the exploitation of renewable energies in Montenegro have been performed such as the announcement of the first international tender for 40 SHPPs last year. The second tender is in preparation. The SHPP cadastre for Montenegro comprises 68 locations (less than 10 MW) with 230 MW installed capacity in total, leading to a potential annual electricity generation of approximately 630 GWh.[4] These data are estimated ones not based on real measurements. The measurements have been done on 15 river flows which were taken in consideration in the first tender.

With regard to the solar energy potential, there is more than 2,000 sunshine hours yearly for most part of the country and more than 2,500 h along the coast. Podgorica, the capital of Montenegro, has an higher annual amount of solar energy (1,600 kWh/m^2/year) in comparison with the other major cities in the South-Eastern Europe (e.g. Rome and Athens). Solar radiation is estimated to be approximately 4 kWh/m^2/day and has a range of maximum and minimum value of 2.6–4.67 kWh/m^2/day. According to data from 2001, the estimated electricity consumption used for the heating of sanitary water in the residential sector was 187 GWh.[5]

The wind energy potential is based on the available wind speed data, which increasing to 5–7 m/s moving toward the sea, reaching 7–8 m/s in some areas along the coast. The most suitable areas for wind power installations in Montenegro result in a wind potential of 100 MW (considering only the windiest areas, wind speeds above 7 m/s).[6]

Montenegro shows a good potential for biomass energy exploitation, taking also in consideration that the annual increment of forests in Montenegro is estimated at 2.6 m^3/ha, while the current utilization rate of wood from the forests is about 1 m^3/ha. Regarding the use of wood residuals, there is an estimated potential of at least three to five small scaled power plants, with a specific capacity of 5–10 MW (Table 13.2).[7]

Table 13.2 Renewable energy sources potential

	Energy generation
Type of RES source	Electricity (GWh)
Hydro SHPPs	680
Solar	187
Wind	200
Wood biomass	200

[4] Ministry for Economic Development (MED), 2006, Strategy for the development of small hydro power plants, March 2006, Podgorica.

[5] Government of Montenegro, 2005, Energy efficiency strategy of the Republic of Montenegro, October 2005, Podgorica.

[6] IMELS, 2008, Identification and analysis of wind pilot sites, May 2008, Rome.

[7] IMELS, 2006, Renewable energy resources assessment, Republic of Montenegro (Wind, Solar and Biomass), December 2006, Rome.

13.2.3 The State of Energy Consumption

Montenegro is recognized as a country which has a high energy intensity but low energy consumption per capita comparing to the other EU countries. The energy intensity factor is very high, e.g. in 2003 – 18 MJ/EUR (0.432 kgoe/EUR). At the same time, gross electricity consumption amounts to 7,290 kWh per capita, which is almost six times less comparing to EU 25 consumption.

The electricity demand, presented in Fig. 13.1, was approximately 4,500 GWh in 2007, of which 2,420 GWh was imported electricity. Beside electricity, the total needs for liquid and gaseous fuels are covered by imports, meaning that 60% of the gross energy consumption in Montenegro comes through import.

The structure of the final energy consumption is characterized by a limited diversification of energy forms and is composed by big industrial plants (steel and aluminium plants) with a share of 54.93%, households 28.45%, other industries 7.11%, railway transport 0.62%, construction 0.16%, agriculture 0.67%, energy sector 0.05% and other sectors (commercial, public buildings, lighting, water supply etc.) 8.01%.[8]

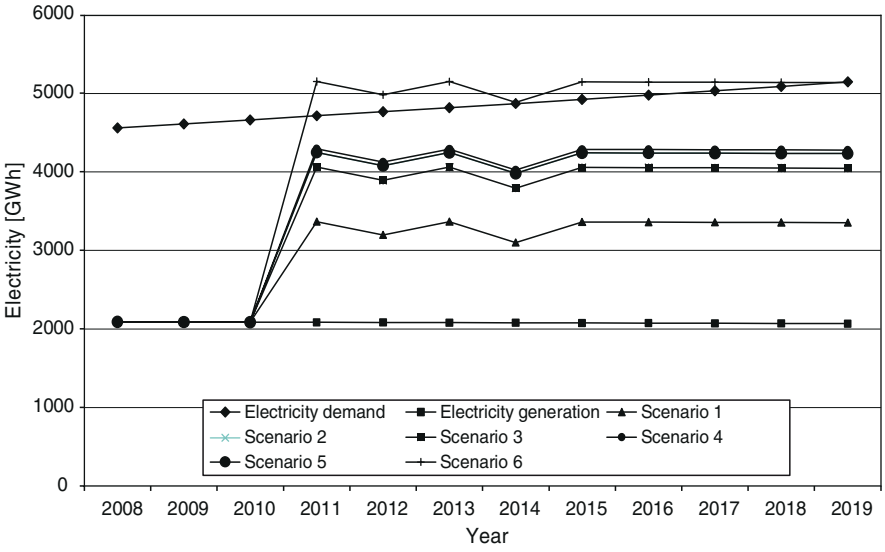

Fig. 13.1 Different predictions of the electricity generation based on the mentioned scenarios

[8] See note 5.

13.2.4 Carbon Emission Factor for the National Power Grid

The Carbon Emission Factor (CEF) for the national power grid has been estimated on the basis of the UNFCCC methodological tool "Tool to calculate the emission factor for an electricity system – version 01.1".[9] This factor is one the main parameters that directly determines the value of the GHG offset potential in the sectors concerning the electricity savings and generation. According to the main strategic goals and the defined Action Plan of the Government of Montenegro different scenarios have been investigated in the context of the CEF value for the Montenegrin power grid. Those scenarios are:

1. Construction of a new lignite based thermal power plant (TPP) Pljevlja II with the same installed capacity as existing one, assuming that the new plant would consume the same coal amount but have a higher efficiency
2. Construction of both TPP Pljevlja II and brown coal based TPP Berane with installed capacity of 110 MW and annual electricity generation of 880 GWh
3. Construction of both TPP Pljevlja II and the new four large hydro power plants (HPP) on Moraca river: Andrijevo, Raslovici, Milutinovici and Zlatica with a total installed capacity of 238 MW and possible annual electricity generation 693 GWh
4. Construction of both TPP Pljevlja II and new large hydro power plant on the river Komornica HPP Komornica with an installed capacity of 168 MW and annual electricity generation of 232 GWh
5. Construction, apart from TPP Pljevlja II, of the new combined natural gas cycle power plant with the same electricity generation as one TPP mentioned within Scenario 2-TPP Berane
6. Apart from TPP Pljevlja II and HPP Komornica construction, use of the existing small hydro power plants (SHPP) and wind potential resulting in 228 and 100 MW installed capacities respectively and with electricity generation of 850 GWh.

The analysis based on the above mentioned scenarios has been done analyzing their influence on the CEF value. The prediction for the electricity demand, presented in Fig. 13.1, could be secured with the current structure of the power sector only by electricity import which in time constantly increases. In order to avoid this big gap between electricity demand and national supply, the influence of defined scenarios have been considered, as presented in Fig. 13.1, too.

The electricity demand will increase according to the most realistic scenario by 3% per year.[10] The imported electricity reached 54% of the total electricity demand in 2007. The main parameters that influence the CEF values are: the ratio between the

[9] See http://cdm.unfccc.int/methodologies/Tools/EB35_repan12_Tool_grid_emission.pdf.

[10] REBIS:GIS, volume 2: electricity demand forecast, final report, The EU CARDS programme for the Balkan region – Contact No. 52276, 2004.

fossil fuel and non-fossil fuel power plants in the national power system, the amount of the imported electricity and the future planed additions to the power system.

The analysis has shown insignificant influence of the imported electricity to the CEF value for the Montenegrin power grid. On the other hand, the main factor, which significantly influences this value, is the future share of the fossil fuel based power plant. Only in the case of scenario 6, the electricity demand would be covered. The current ratio of the fossil fuel/RES based power plants is 40%/60% resulting in 0.775 tCO_2/MWh of the CEF value and in comparison with all the other scenarios represents the highest value as presented in Table 13.3.

It could be expected that with the new planned thermal power plants as the new additions to the power system, the CEF value would be higher, but this will probably not be the case. In the current scenario, in fact, the existing TPP Pljevlja I has a higher emission factor than the future unit TPP Pljevlja II. Just by introducing large hydro power plants to the system the CEF value would significantly decrease.

Based on the GHG National Inventory data, the most carbon intensive sector is the power generation and industry sector. To assess the total GHG abatement potential for particular sectors such as energy savings potential in the power, industry and building sectors, presented in Table 13.4, the CEF value of 0.775 tCO_2/MWh has been used. With respect to that, the approach in the estimation of the GHG abatement potential is better explained in the Chapter "CDM projects potential identification: relevant technical issues and steps to be made".[11]

Table 13.3 CEF values based on different scenarios

CEF				
Current scenario	Scenario 1	Scenario 2	Scenario 3a	Scenario 3b
0.5381944	0.5263889	0.5145833	0.51	0.1291667
Scenario 4a	Scenario 4b	Scenario 5	Scenario 6	
0.125	0.425	0.40625	0.17	

Table 13.4 Summary of the GHG abatement potential of Montenegro

Sector	Carbon potential per ($ktCO_2$ eq/year)
Energy savings potential per sectors (energy, industry, building, other[12])	~1,270
Renewable energy (hydro[13], biomass, solar, wind)	1,400
Waste sector (MSW + manure treatment)	35
LULUCF sector	650
Other (PFCs emissions)	400
Total	~2,900

[11] *See Chapter 10 in this volume, I. Radulovic.*

[12] *Including tourism sector, transportation, lighting etc.*

[13] *Including technically useful potential only of small hydro power plants.*

The results show the highest abatement potential in the energy efficiency improvement in the industry sector, particular in big industries such as the steel mill in Niksic and the aluminium plant in Podgorica. These savings with the potential energy savings in the power sector, related to the reconstruction of the existing power plants and of the transmission and distribution power network could reduce GHG emissions by approximately 1,270 $ktCO_2$ eq per year. The use of the estimated technical useful renewable energy potential could lead to the annual GHG offset of approximately 1,400 $ktCO_{2eq}$.

13.3 The Assessment of the Republic of Montenegro Project Potential Within the Portfolio

The activities related to the scouting of the potential CDM projects in Montenegro have been summarized in the national CDM portfolio.[14] This portfolio has identified 12 projects so far: two projects in the field of the energy efficiency in the industry sector, two in energy efficiency in buildings and the public sector, three in waste and manure management, three in the biomass utilization for the electricity/heat generation, one small hydro project and one project in afforestration. These projects are:

1. CDM project activities in KAP
2. Energy efficiency in steel mill in Niksic
3. Energy efficiency in street lighting
4. Energy efficiency in the sport center Moraca
5. Podgorica landfill-gas capture and energy generation
6. Bundling Plevlja and Niksic dumpsite-gas capture and flaring
7. Methane capture and combustion from manure management treatment – pig farm Spuz
8. Wood biomass to energy in northern Montenegro
9. Wood biomass to energy in Pljevlja municipality
10. Fuel switch in the wood-processing industry
11. Small scale bundled project Krupac and Slano
12. Afforestation of degraded land

The total potential of GHG offset of these projects accounts on the annual basis approximately 770 $ktCO_{2eq}$.

[14]The portfolio for Montenegro is available at http://www2.minambiente.it/pdf_www2/CDM_Portfolio_Balcani_2007/CDM_Portfolio_Montenegro/CDM_Portfolio_Montenegro_070507_EN.pdf.

13.4 CDM Related Issues in Major Industries

The most relevant issue in the CDM project scouting in Montenegro is related to the possibilities of GHG emission reductions in the two existing industries, the steel plant Zeljezara Niksic a.d. and the aluminium plant Kombinat Aliminijuma Podgorica (KAP), which are the biggest ones, not only in the country but in the whole region too. These two plants are one of the main environmental concerns in the country as the biggest energy and other resource consumers and at the same time as the main contributors to the national GDP. Both have been privatized recently and the new owners already started to perform some actions in their revitalization in order to stay competitive in the global market. Since both plants are very big complexes with a large number of employees, it is very important for the country from both the economical and the social point of view, to have these plants operational. Therefore, the potential of CDM projects may give the opportunity to the country to reach some goals towards its sustainable development.

The scouting of potential CDM projects in these plants has been a very challenging and long lasting procedure. This was mainly related to the negotiations with the new owners and the existence of many other obstacles such as: the very frequent change of the plant's management, the change of the electricity price and the price of the products on the global market influencing the change of the management's investment plans. After demonstrating the reasons and interests for both the plant's owners and country itself to develop some projects using the CDM opportunities, a couple of new potential CDM projects were identified and agreed. The preliminary evaluation of those projects has shown a higher GHG offset as compared to other similar projects in the region. Some main technical and procedural issues in the preliminary projects assessment based on the site visits and data collected are presented below.

The steel plant Zeljezara Niksic a.d. with 1,500 employees is a producer of engineering steel parts along with small quantities of high grade and special steels. The plant has six different process units: steel mill, blooming mill, rolling mill, medium and light section mill, forging plant and drawing mill. The annual production in 2006 was 162.037 t of crude steel with the plan to increase the production up to 600,000 t/year in 2011. The annual energy consumption comprising electricity, heavy fuel oil and coal, in 2006 was 191.235 MWh, 8.740 and 22.241 t respectively. The highest energy consumers are three electric-arc furnaces with 60 t capacity in the steel mill consuming 720 kWh/1 t of product. The only production line which is technologically obsolete and should be replaced with a modern one is the light section mill. All the others are technologically sound and could be refurbished and modernized for the production of high quality engineering steels. Based on an energy audit many options with significant energy saving potential have been identified in almost all production units. Some of those energy efficiency measures are:

- The optimization of the existing electro-arc furnaces and the compensation of electric energy where the consumption of electrodes would significantly decrease (approximately 15%) reaching savings up to 70–80 kWh/t per one batch

- The increasing a rolling speed, modernization and control of the heat treatment furnaces in the blooming and rolling mill getting a product range of better quality
- The reconstruction of the system for supplying, refining and recirculation of the industrial water with saving of 5,000 MWh electric energy
- The change of burners and waste heat recovery in the shaft furnaces resulting in up to 40% savings (these furnaces consume 80 kg of heavy fuel oil per 1 t of products)
- The reconstruction of the existing three boilers in the energy unit (which supplies the factory with hot water, N_2, O_2, steam, acetylene, compressed air) introducing the regulation system with the saving potential 30% of the current coal consumption
- The installation of 2 × 2.2 MW turbines driven by steam now used for technological processes, sanitary water and heating
- The installation of a measuring equipment and a central regulation system at the compressor station with the savings reaching 5,000,000 kWh
- The reconstruction of the existing pipeline system

The preliminary assessment of GHG offset for the presented measures has been estimated and has an approximately value of 46,000 tCO_{2eq}.

There is a possibility to develop a couple CDM project activities in steel mill Zeljezara Niksic a.d. resulting in GHG offset of approximately 46,000 tCO_{2eq} per year. One of them could summarize all above mentioned energy savings measures applying the approved small scale methodology AMS-II.E. “Energy efficiency and fuel switching measures for the industrial facilities” for GHG offset calculation. Another CDM project activity could be the waste heat utilization from waste gasses from shaft furnaces for heat and/or electricity generation using the small scale methodology AMS-II.I. “Efficient utilization of waste energy in industrial facilities”.

The aluminium plant KAP is another big industry in Montenegro. KAP is a plant with the highest participation in GDP, as well as in the value of exported goods in Montenegro. It has been privatized by the foreign back company Salomon Enterprises, in 2005. This plant is the biggest energy consumer in the country with an annual average electricity and heavy fuel oil consumption of 1,917.5 GWh and 92,300 t respectively for the last 5 years. The plant has three main units: primary smelter, alumina refinery and carbon plant. The main electricity consumer is the primary smelter which has two pot lines with 256 pots. The main heavy fuel oil consumer is the alumina refinery. Two site visits have been performed, data collected though submitted questionnaires and preliminary assessment of the potential GHG offset done. The possible CDM project activities in the plant include two aspects: energy efficiency measures and reduction of the PFCs emissions in the primary smelter with side work prebake (SWPB) smelting technology, with a plan to switch to point feeding prebake (PFPB) system and to introduce the system for the waste gases collection. The plan is to reach the number of anode effects per day of approximately 0.1 comparing to current value of 0.562–1.44 mV/pot/day. Besides that, other identified energy efficiency measures are: the reconstruction of the existing three out of four boilers and one out of two turbines with 3.6 MW of installed capacity each. Based on the brief overview of the latter and submitted

data, the preliminary estimation of the possible GHG emissions reduction has been done, using the methodology AM00059 Reduction of the GHG emission from primary aluminium smelters – Version 1.1.[15] Applying the slope method in the calculation and taking into account just the switching from SWPB technology to the PFPB one, the level of GHG emissions reduction could reach the approx. value of (640,000 ± 20%) tCO_{2eq} per year without considering the potential GHG offset from the energy savings.

[15] *See http://cdm.unfccc.int/methodologies/DB/W3FG9BW4QPVKEXZKBMW1YHM4PS2Y5H/view.html*

Chapter 14
CDM Projects Experience in Serbia

Vladimir Stefanovic and Branko Sikirica

14.1 Introduction

Although the Kyoto Protocol entered into force in the Republic of Serbia relatively late compared to the other three Balkan countries analysed, the country revealed an interesting CDM project potential.

A preliminary analysis estimates the carbon potential of the country in the range between 20 and 25 Mt CO_2eq/year as illustrated in Table 14.1 and explained more in detail in the next sections.

14.2 The Assessment of the Republic of Serbia Carbon Potential

14.2.1 The Renewable Energy Sector

The energy sector is currently being reformed, in order to be harmonized with the EC law requirements. The reform is based on the Energy Law (2004)[1] and the Energy Sector Development Strategy by 2015.[2] The focus of the reform is on modernization of the existing power plants, rationalization of the fossil fuel sources, utilization of the renewable energy sources and implementation of clean technologies, as well as construction of new power plants.

Still, the biggest carbon potential is in the energy sector. The main reason is generally low energy efficiency in industry, transport and building due to the use of obsolete equipment and lack of finances for investments in modern and efficient

V. Stefanovic
Member of the Task Force for Central and Eastern Europe, IMELS

B. Sikirica
Member of the Task Force for Central and Eastern Europe, IMELS

[1] See Official Gazette of Republic of Serbia No. 84/04.

[2] See Official Gazette of Republic of Serbia No. 44/05.

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_14,

Table 14.1 Summary of carbon potentials

Sector	Sub-sector	Carbon potential per year, kt CO_2
Energy saving potential per sectors	Industry	2,000
	Transport	2,800
	Building	6,500
	Others	1,200
	Total	12,500[3]
Renewable energy	Small hydro	800
	Biomass	2,300[4]
	Solar	NA
	Wind	1,300
	Geothermal	650
	Total	5,050
Waste sector + manure treatment		410 + 800
LULUCF sector		500
Total		~19,760

technologies. Considering the industrial sector, the following measures for energy efficiency could be applied in order to reach reductions of energy consumption: optimisation of the combustion processes (~940 GWh), efficiency increasing of existing boilers, modernisation of the control and regulatory systems of the industrial processes (~1,880 GWh), re-use of waste heat from the processes, change of existing electric engines (~188 GWh) etc. In the building sector energy savings could reach up to 13,000 GWh by use of renewable energy in the district heating systems (~1,500 GWh), thermal insulation of the buildings walls (~3,500 GWh), efficiency improvement in lighting systems (~701 GWh) as well as for the windows in the households and public buildings (~7,400 GWh).[5]

Renewable energy potential of the Republic of Serbia is estimated on about 4.89 Mtoe/year which is about half of the domestic energy production in 2007 (8.79 Mtoe). Only 18% or 0.86 Mtoe/year of that potential is used up to now, predominantly by the hydro power plants with installed capacity of more than 10 MW.[6]

The total hydro potential, technically and economically feasible for implementation in the country, is estimated at 17 TWh/year. While 10 TWh/year is already in use by hydro power plants with installed capacity of more than 10 MW, there is still an unexploited potential of 5.2 TWh/year for these type of plants on the rivers Morava (2,300 GWh/year), Drina and Lim (1,900 GWh/year) and Danube (1,000 GWh/year).The rest of the hydro potential, about 25%, is adequate for small hydro power plants (SHPP) up to 10 MW/4/. There are 870 potential locations identified in the Cadastre of Locations for SHPP in Serbia published in 1987 by the Ministry of Mining and Energy. According to the cadastre, total installed power on these

[3] Without energy savings potential in electricity generation, transmission and distribution.

[4] Including agricultural residue, forestry and wood industry.

[5] Source: Statistical Yearbook of Serbia 2004.

[6] Ministry of Mining and Energy of Republic of Serbia.

locations is 449 MW with annual electricity generation of 1,590 GWh, which is about 4.3% of the electricity production in the country.[7]

Nevertheless, the most significant renewable energy source of the Republic of Serbia originates from the biomass. The total energy of all biomass residues has been estimated to 115,700 TJ/year. These are mainly residues from agricultural cultivations with a share of 65,000 TJ/year. Residues from fruit and wine growing contribute with 25,000 TJ/year and from forestry and wood industry with 25,700 TJ/year. However, the energy potential of the biomass currently not used for energy or other purposes, like for fodder, covers in stables, industry needs, accounts over 70,000 TJ/year which could be transferred into annual power production of about 5.5 TWh/year.[8]

Another significant energy potential in the country is the wind energy. The surface with suitable wind (average annual velocity on the height of 50 m is at least 5 m/s) covers 47,125 km^2. It has been estimated that the most favourable locations are: Midžor (7.66 m/s), Suva Planina (6.46 m/s), Vršački Breg (6.27 m/s), Tupižnica (6.25 m/s), Krepoljin (6.18 m/s) and Deli Jovan (6.13 m/s). A preliminary analysis indicates that the wind potential amounts to 2,300 GWh/year with 1,300 MW of installed capacity that is about 15% of the total electric power capacities in Serbia.

The entire installed capacity of all 24 constructed geothermal systems that are currently in use is approximately 23 MW, with a production of 5,000 toe. However, the real geothermal potential is considerably greater and estimated to 600 Mtoe in 112 hydro-thermal, oil and gas pools existing in Vojvodina according to a research organized by the NIS-Naftagas company.[9]

14.2.2 The Waste Sector

Waste management in the Republic of Serbia is inadequate: the sectoral legislation is incomplete or not properly enforced. As a result, there are currently no obligations involving compulsory recovery, collection and flaring of the landfill gas. At present, there are 180 officially registered landfills for disposal of municipal waste. The total amount of municipal solid waste that is disposed on these sites is about 2.2 Mt (in 2003) according to the data available from the Waste Management Strategy of Serbia and Montenegro. There are also hundreds of illegal dumpsites of different size in the rural areas. Registered dumpsites as well as illegal ones commonly fail to meet the technical requirements of sanitary landfills. Furthermore,

[7] Ministry of Mining and Energy of Republic of Serbia.

[8] Energy potential, characteristics of biomass residues and technology for its use as energy source, NPEE, Ministry of Science and Environmental Protection, Belgrade, 2002.

[9] Assessment of the projects' potential in the fields of renewable energy sources, energy efficiency and forestry management, in the framework of clean development mechanism foreseen by the Kyoto protocol in the Republic of Serbia, Italian ministry for the environment, Land and Sea (CDM Portfolio for Serbia), May 2007.

landfill gas recovery systems are rare and only an insignificant amount of waste is being separated for recycling or composting.

14.2.3 The Livestock Farming

Livestock farming is a traditional production activity in the country. About 80% of total swine population is produced in large scale pig farms (Table 14.2). According to the data available for the province of Vojvodina, average production on these types of farms is about 23,000 pigs per year.[10]

The general survey indicated the liquid treatment as a common practice with swine manure on large scale pig farms. The manure is flushed from the barns into lagoons where it is utilized as fertilizer on the fields or it overflows into canals or small natural systems. Despite the facts that some farms have manure management systems, often they are not operational due to lack of financial resources for running and maintenance costs. Because of all these factors, manure treatment sector offers a large potential for implementation of projects under the CDM in the country.

14.2.4 The Forest Sector

Forests cover 2,412.940 ha, corresponding to 26% of the total area of Serbia. The State owns 51.5% while the rest is in private ownership. Private forest areas are very fragmented and it is difficult to manage them on a sustainable basis. Currently, only 2,000–2,500 ha of forests are being planted annually. It is estimated that around 200,000 ha of state owned land needs to be reforested. In addition, the Ministry for Agriculture, Forestry and Water Management of Serbia is considering reforestation of around 1.3 million hectare of vacant and abandoned agricultural land in the long term. The two main forest management types in Serbia are the intensive management of even-aged stands and plantations in Vojvodina and other

Table 14.2 Swine population, in thousands of heads

	1999	2000	2001	2002	2003	2004
Suckling pigs under 2 month	1,234	1,174	1,070	984	1,021	1,125
Pigs from 2 to 6 months	166	1,603	1,400	1,434	1,433	1,300
Sows and sows of first farrow	896	887	790	817	825	692
Breeding boars	26	25	37	49	44	40
Other pigs	370	377	317	304	310	283
Total	4,293	4,066	3,615	3,587	3,634	3,439

[10] Serbia Danube River Enterprise Pollution Reduction Project, FAO Consultant Report, January 2004.

lowlands, and the combined management of hill and mountain forests, with a high share of protective functions. However, the state of the current information and the need for a further consolidation at the UNFCCC level of the sinks in the CDM projects validation procedures do not allow a quantified assessment of the carbon potential associated with forestry in the country. Nevertheless, the possibility of generating additional environmental services and benefits makes forestry a very interesting option for carbon savings.

14.3 The Assessment of the Republic of Serbia Project Potential Within the Portfolio

Under the Memorandum of Understanding in the field of environment and sustainable development, signed between the Republic of Serbia and the Ministry for Environment, Land and Sea of the Republic of Italy (IMELS) in 2002, one of the joint activities is the cooperation related to the Kyoto Protocol and the CDM. In the framework of the Memorandum and in order to support the participation of the Country in the CDM of the Kyoto Protocol by identifying potential projects, the Ministry of Environment and Spatial Planning of the Republic of Serbia (MESP) and the IMELS published a Call for submission of project ideas under the CDM in October 2008.

Governmental institutions, municipalities, public utilities, other public or private companies and NGOs in Serbia have been invited to submit descriptions of the project ideas, which contribute to reductions of greenhouse gases (GHG) emissions in the following sectors eligible under the CDM:

- Energy sector
- Energy efficiency
- Industry (cogeneration, heat energy savings, electricity savings, waste heat utilization, rehabilitation of distribution network etc. in the manufacturing industries, chemical industries, metal production etc.)
- Communal/commercial sector (electricity generation, heat generation, street lighting, etc.)
- Renewable energy sources (wind, geothermal, solar, hydro, biomass)
- Fuel switch (solid fossil fuel to gas, liquid fossil fuel to gas)
- Methane capture (landfill gas collection, waste water treatment, pit gas, oil and gas exploitation)
- Carbon sinks (afforestation)

Most of the project ideas are linked to the energy sector with a share of 62%. Furthermore, the renewable energy sources with 32 descriptions of project ideas represent the sub sector with the most possibilities regarding not only the energy sector but also the complete Call (Fig. 14.1). There are four ideas related to the utilisation of geothermal energy, seven for the utilisation of biomass, two for the utilisation of solar and one for the utilisation of organic waste from the dumpsite as

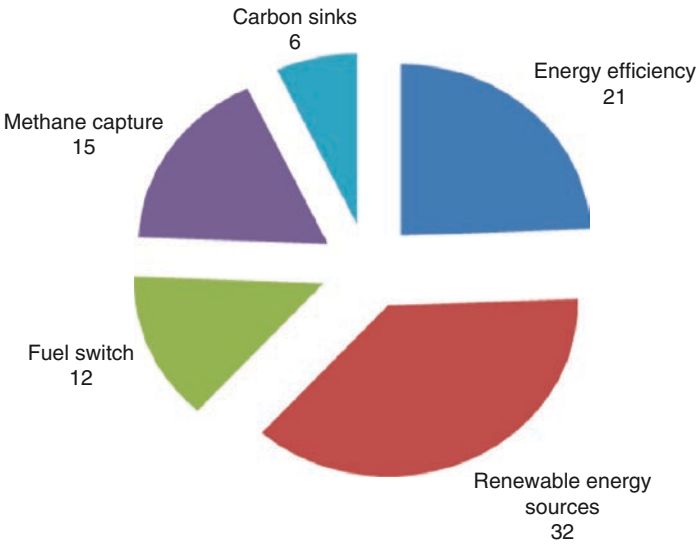

Fig. 14.1 Summary of the projects ideas presented under the Call

renewable energy sources. Also, there are two project ideas for installation of wind farms and 16 possible locations for SHPP.

The other sub sector that offers variety of carbon savings is energy efficiency. There are 21 possible energy efficiency ideas to be developed as a CDM projects. It is interesting that an almost equal number of ideas come from the industry (9) and from the municipalities (8). Together with the ideas from public utilities (3), they indicate that public sector shows an interest for energy reductions at least as much as private companies.

There are 12 descriptions of project ideas associated to switching from solid or liquid fossil fuels to gas and most of them are related to companies (8).

Methane capture sector has a significant number of 15 project ideas as well. Most of them are related to improvement of animal waste manure systems on large swine farms (8). Others are related to recovery of landfill gas (4), waste water from the industry (2), and pit gas (1). As a result, most of the projects are proposed by companies.

There are six carbon sinks projects proposed by municipalities, public utilities and other organisations.

As shown in the Fig. 14.2, most of the project ideas are associated with companies or industries. Subsequently, municipality and public utilities are next in the line with number of potential projects.

All submitted descriptions of project ideas were screened and assessed from the perspective of CDM viability and possibility of GHG emission reductions. Only projects with high CDM feasibility have been selected by the representatives of SMESP and IMELS. Selected projects will be further elaborated through the preparation of the feasibility study and the Project Design Document (PDD) that will be

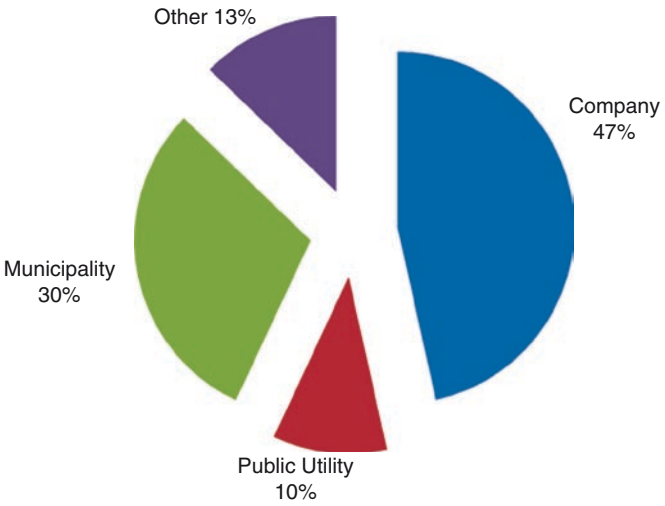

Fig. 14.2 Summary of the site owners presented under the Call

co-financed by the IMELS in order to support CDM projects implementation and participation of the Republic of Serbia in the CDM of the Kyoto Protocol.

Within the institutional framework of the Memorandum of Understanding, IMELS and the Serbian Ministry for Environmental Protection (SMEP) launched in 2002 the project "Monitoring Plan of the Chemical–Physical and Radioactive Pollution in the Balkan Area".

One of the main objectives of the project was selecting of the pilot area in Serbia for application of a methodological approach for the development of the Monitoring Plan. According to this initial screening, Pančevo and in particular the South Zone Industrial Complex (SZIC) was finally selected as pilot area.

In the framework of this bilateral cooperation and the signed MoU "Cooperation on Environmental Protection" *Pančevo Action Program* has been launched in October 2004 within the event "L'Italia a Belgrado 2004" as a pilot integrated project promoted and financed by the Italian Ministry for the Environment, Land and Sea.

14.4 The Pančevo Action Program

14.4.1 The Location

The City of Pančevo is located in the north-eastern part of the Republic of Serbia, in the south of the Autonomous Province of Vojvodina (Fig. 14.3). The territory of the City of Pančevo covers an area of approximately 760 km^2 around the confluence of the Tamiš River into the River Danube. The geographical position of Pančevo, with specific reference to the closeness to the city of Belgrade

Fig. 14.3 Thematic areas

(around 20 km) and the Danube River, well connected with the major highways, railways and waterways, has positively affected the industrial development of the city itself.

The three most important plants, located in so called SZIC, are: HIP Azotara, HIP Petrohemija, and the NIS Oil Refinery. These establishments, which cover about 480 ha, employ about 6,600 people and represent the major employer for the entire Pančevo area.

The Pančevo Action Program identifies a set of priority interventions covering seven main sectors:

– Air quality
– Energy efficiency improvement
– Environmental risk monitoring
– Soil and water remediation
– Water quality
– Waste management
– Training and capacity building

One of the main objectives of the Pančevo Action Project, among the others concerning environmental protection and sustainable development, is the promotion of the best available technologies in reducing the consumption of the energy resources through innovative market mechanisms such as the CDM under the Kyoto Protocol.

The project has been coordinated from the IMELS local office in Pančevo, opened in 2005 and implemented in close cooperation with the Serbian side, represented by local and central Serbian authorities as well as SZIC representatives.

14.4.2 The Energy Efficiency Improvement Sector

The project scouting in the energy efficiency sector has been done in cooperation with local authorities, SZIC and the City of Pančevo representatives, aimed to identify industrial sites where energy efficiency can be improved. The main objective is to help sustainable development of industries, and the City of Pančevo in general, and decrease air emissions, notably CO_2, taking also in account the opportunities of using the Kyoto Protocol flexible mechanisms.

After a series of meetings with local stakeholders, two projects have been selected:

– Energy Efficiency Optimization in HIP Azotara
– District Heating System Optimization

In the following two sections, a basic summary of those two projects is presented.

14.4.3 The Energy Efficiency Optimization in HIP Azotara

HIP Azotara is the leading producer of mineral fertilizers and nitric compounds of the Balkan region, with the main products: ammonia, nitric acid, urea, ammonium nitrate and calcium ammonium nitrate. The main sources of energy used by the plant are electric power and natural gas.

The proposed project activities are foreseen in different process units, with the final aim to recover wasted heat from different production lines by implementing specific process modifications. Also, as one of the outcomes, a significant reduction of energy consumption and CO_2 emission reduction will be reached as a clear CDM potential of this project.

The energy efficiency interventions developed within the project can be divided in:[11]

- Efficiency improvement in the absorption column, nitric acid plant, line no. 3
- Secondary steam condensation and heat recovery at the neutralization plants no.1 and 2 and the ammonium nitrate plant no. 3
- Heat recovery at the nitric acid production unit no. 3 compressor stage
- Additional heat recovery on the tail gases at the nitric acid plant, line no. 3
- Improvement of the instrumentation to control the steam/carbon ratio in the primary reformer at ammonia plant

Basic engineering design package, financial analysis and estimation of the CO_2 emissions reduction were carried out for each intervention.

The proposed project activities will contribute to CO_2 emission reductions by improving the different process units. Those direct emission reductions can be reached by reusing of wasted heat and by decreasing natural gas on-site consumption for steam production.

Based on the expected energy consumption reductions of the proposed interventions, GHG emissions reductions were calculated. The minimum and maximum estimated emissions savings for the five interventions are included in a range between 1,307 t CO_2eq/year (Project No. 1) and 15,539 t CO_2eq/year (Project No. 2).

For the five interventions estimated the overall emission reductions are 30,800 t CO2eq/year.

An estimated initial capital investment of approximately 8 million euro can present a critical barrier for the project implementation. The realization of these five specific energy efficiency interventions could represent a pilot CDM project and a suitable showcase towards CO_2 emissions reductions. One of the unusual circumstances that occurred during the project development phase was the change in the ownership of HIP Azotara. The company was privatized during the year 2006. The new owners agreed with the project idea and the preliminary design has been finished in 2007. At the moment, however, HIP Azotara is experiencing some problems with the production and the implementation of this Project is in standby.

14.4.4 District Heating System Optimization

The second project is focused on the identification of priority interventions for the improvement of the existing unit in the Pančevo District Heating (DH), the Heating Plant Kotez (current capacity 53 MWt), and the optimization and preparation of a feasibility study for the selected initiatives. The heating plant use natural gas as fuel. The district heating in Pančevo is run by the Public Utility “Grejanje”.

[11] Energy Efficiency Optimization in HIP Azotara, Preliminary Design, IMELS 2007.

The Feasibility Study[12] has been done in close coordination and consultation with the main stakeholders and DH plant management. The Study includes technical specifications and a first financial analysis (payback period, internal rate of return, benefits over costs ratio).

The DH system in general shows a great potential for energy efficiency improvement since the whole system is outdated and needs reconstruction. The main interventions planned are rehabilitation of existing Heat Plant Kotez, with introduction of combined production of electrical and thermal power (CHP), power increasing and by that dismantling of small distributed heat generation plants with low efficiency.

The new CHP plant will provide electrical power of 24.9 MWe (aimed to be sold to the National Grid Operator) and thermal power of 21.9 MWt (covering approximately the 75% of the total yearly heat demand of the area).

The production of new CHP plant has been calculated for two scenarios:

- Scenario 1: motors operating in cogeneration only during the winter period
- Scenario 2: motors operating in cogeneration during the whole year, in summer time for sanitary water production only

The study includes the estimation of the energy consumption and CO_2 emissions reduction, with the aim to assess the possible implementation as CDM project.

Both direct and indirect emission reductions have been considered in the calculations.

- Direct emission reductions from natural gas on-site combustion, due to the difference between the project scenario and business as usual scenario
- Indirect emission reductions from electrical energy delivered to the national power grid

The results showed that the realization of the CHP will allow an annual fuel energy reduction of 131,438 MWh for Scenario 1 and of 174,844 MWh for Scenario 2. In addition, the estimated CO_2 eq. emission savings are about 69,300 t/year for Scenario 1 and about 113,000 t/year for Scenario 2.

Even though the initial capital investment of approximately 17.5 million euro could represent a critical barrier for the project implementation, the realization of a CHP in Pančevo should be welcomed since it could represent a valuable pilot CDM project.

As one of the main obstacles for the implementation of this project consists in the fact that the company "Grejanje" is a public utility, co financed by the City of Pančevo. Because of that, it would be very difficult for any foreign investor to participate in it since they would have to make some kind of Public–Private-Partnership with a public utility, which in Serbia is still an insufficiently explored field.

[12] District heating system optimization Kotez cogeneration heating plant – preliminary design, IMELS 2007.

Chapter 15
Conclusion

Lessons Learned in the Establishment of the DNAs in the Western Balkans

Massimiliano Montini

15.1 Comparing the Experiences

In the previous chapters of the book, we have been presenting and analysing the most relevant legal and technical issues experienced in setting-up the necessary framework for promoting the development of Clean Development Mechanism (CDM) projects in the Western Balkans.

Initially, we have been describing the institutional framework existing at international level for the development of CDM projects, within the wider context related to the implementation of the Kyoto Protocol on Climate Change, looking at the present state of the art and the possible future scenarios. In such a context, the boundaries of the bilateral cooperation performed under the auspices of the Italian Ministry for Environment, Land and Sea (IMELS) in the Western Balkans, which has fuelled the process aimed at the promotion of CDM project activities in these regional area have been briefly sketched.

Then, the twofold analysis of the major legal and technical issues experienced in the process of setting up the framework for the development of CDM projects in the four countries under scrutiny (Albania, (the Former Yugoslav Republic of) Macedonia, Montenegro and Serbia) has been presented. This has been made firstly by highlighting the legal dimension, mostly related to the efforts made for the establishment in each of the selected countries of the so-called Designated National Authority (DNA) for the evaluation and approval of the CDM projects proposals, and secondly by describing the main technical issues arisen in the definition of the CDM project potential and in the concrete identification of a portfolio of possible CDM projects to be developed in the said countries, taking into account their specific needs and peculiar features.

The overall experience gained in the performance of the legal and technical activities needed for setting up the conditions for an effective development of CDM projects in the Western Balkans has shown that the correct establishment and the effective

M. Montini
Director, Environmental Legal Team, University of Siena

M. Montini (ed.), *Developing CDM Projects in the Western Balkans: Legal and Technical Issues Compared*, DOI 10.1007/978-90-481-3392-5_15,

functioning of the competent national authority for CDM projects evaluation and approval, namely the DNA, can be truly considered the most relevant prerequisite for the concrete implementation of CDM projects activities in a Non-Annex I country to the Kyoto Protocol. Therefore, it seems that the most paradigmatic and relevant lessons learned in the whole process described above may be those related to the establishment of the DNAs in the various countries under scrutiny, including the setting up of the necessary administrative authorities, the determination of their precise structure and competences as well as the definition of the appropriate procedures for evaluation and approval of the proposed CDM projects.

With this in mind, on the basis of the outcomes of the specific country-by-country analysis contained above, it should be now possible to compare the experiences made in the four Western Balkan countries benefiting from the IMELS legal and technical assistance, in order to assess which kind of similarities as well as of peculiarities may be detected in the DNA structures chosen, in the competences assigned to the national authorities by the relevant national legislation and in the procedures determined for the evaluation and approval of CDM projects.

15.2 The DNA Structure

The first issue to be examined in the framework of our comparative analysis among the different DNAs at stake is their structure. To this respect, the four Western Balkan countries analysed seem to have made similar choices in setting up their national authorities in charge for evaluating and approving CDM projects proposals. In particular, they all chose the so-called "Single Ministry model" and thus decided to locate the DNA within the national Ministry in charge for environmental protection. Such a Ministry is, in fact, named in different ways in the various countries examined, ranging from Ministry of Environment, Forests and Water Administration of Albania in Albania, to Ministry of Environment and Physical Planning in Macedonia, to Ministry of Spatial Planning and Environmental Protection in Montenegro, to Ministry of Environment and Spatial Planning in Serbia.

Despite the different terminology used in the various countries under scrutiny, however, the relevant point to be made here is that a similar approach can be detected among the countries analysed, since in no case the competence to host the DNA has been conferred either to other Ministries (not in charge with environmental matters), or to other bodies, institutions or agencies which are external to the government structure.

Beside identifying the Single Ministry model as the reference for setting up their DNAs, the four countries examined show another relevant similarity with regard to the structure chosen for their national authorities. In fact, they all opted for a "two-unit administrative model" as the DNA working structure, based on the one side on a mainly regulatory body in charge with preparing the final decisions on the CDM projects proposals approval and on the other side on a mainly technical body, which is assisting the regulatory body, by performing most of the necessary technical examination and evaluation activities on the proposals and preparing the decisions to be taken by the regulatory body. In practice, the regulatory and the technical

bodies are named differently in the various countries, but this does not influence too much their common way of functioning. The similarities in fact prevail in their membership rules as well as in the way they work.

If we look in greater detail at the model chosen, however, the four countries analysed may be divided in two groups. On the one side, in fact, we may place Albania and Montenegro where a more similar structure exists, which is based on two bodies, the first one with more specifically regulatory functions, which is named DNA Committee in Albania and CDM Committee in Montenegro, and the second one with more prominent technical functions, which is called DNA Technical Secretariat in Albania and Technical Operative Body in Montenegro. As for the other possibly interested Ministries, they may be involved on a case-by-case basis in the evaluation procedure, depending on the type of proposed project.

On the other side, in Macedonia and in Serbia, it seems that another DNA structure has been chosen. In such countries, in fact, the CDM projects proposals are received by the DNA Secretariat and sent to a technical body composed of representatives appointed by the different relevant Ministries, which is named Technical Advisory Body in Macedonia and Working Group in Serbia. Such a body is in charge of providing the technical assessment and evaluation of the projects proposals and submit it to the DNA Secretariat, in the form of a separate written opinion (in Macedonia) or in the form of a "harmonized opinion adopted by consensus, on the basis of the individual opinions of the Members of the Group" (in Serbia). In such cases, as it clearly emerges, the position of the other possibly interested ministries seems to be a stronger one, but this may, however, sometimes cause unnecessary delay in the evaluation procedure.

In all the four countries analysed, however, the final letter of approval or rejection of the CDM project proposals is signed by the competent minister, i.e. the head of the ministry where the DNA is located, who finally retains the so-called political duties with respect to the overall CDM projects approval process.

In sum, we may say that the DNA structure chosen in all the four Balkan countries is based on some common features, such as the adoption of the "Single Ministry model", characterised by a designated national authority located within the national ministry in charge for environmental protection, and uses as a working structure a "two-unit administrative model", composed of a mainly regulatory body on the one side and a mainly technical body on the other side. Moreover, all the four countries chose to locate the DNA within pre-existing administrative structures, so as to reduce the costs for their establishment and minimise the problems of coordination that the creation of a new administrative body may cause.

15.3 The DNA Competences

The second relevant issue which is worth a comparative evaluation in order to highlight the similarities and the differences existing within the four Western Balkan countries examined refers to the distribution of the competences within the national DNAs with regard to the assessment and approval of the CDM projects proposals submitted.

In general term, we have been already mentioning that normally most of the competences which belong to the DNAs fall within the broad category of the regulatory functions, among which beside the strictly speaking regulatory tasks may be considered also the technical and political tasks. Moreover, the DNAs should also perform promotional functions, aimed at attracting more and more potential investors in the country. However, the analysis of such a second category of functions, which is normally not very well regulated within the relevant national legislation, is not one of the specific aims of the present analysis.

With respect to the regulatory functions, instead, we may say that the four countries under scrutiny seem to have made similar choices. In fact, despite the existing differences, it can be argued that in general terms the main regulatory competences of the DNAs lie within the DNA Secretariat, which is named in various ways, but can be identified as the main reference body for the discharging of the DNAs responsibilities, duties and functions in the different legal systems analysed. The main regulatory competences of the DNA Secretariat are performed by the DNA Committee in Albania, by the DNA Secretariat in Macedonia, by the CDM Committee in Montenegro and by the DNA Secretariat in Serbia.

In some of these countries, namely in Albania and Montenegro, a technical body exists, which is in charge of assisting the DNA Secretariat in performing its technical functions. Such a body is named Technical Secretariat in Albania and Technical Operative Secretariat in Montenegro. Moreover, as already noted above, the "political" participation of the other Ministries which may be interested depending on the type of project is ensured by the possibility of the DNA Committee (Albania) and the CDM Committee (Montenegro) to engage other Ministries in the CDM evaluation process on a case-by-case basis.

In the other two countries, namely Macedonia and Serbia, the DNA Secretariat holds instead all the necessary technical and administrative functions and reports directly to the competent Minister with the proposal for approval/rejection of the submitted CDM projects. However, even in such cases, formally speaking a technical support body to the DNA Secretariat still exists, but in practice it is a much more "politically" than technically oriented support body. This is essentially due to the fact that such bodies are composed of representatives directly appointed by all the relevant ministries with an interest in the final decision, which must provide a prior positive opinion on the proposed CDM projects, before the letter of approval may be finally signed by the competent minister. Those technical/political support bodies are named Technical Advisory Group in Macedonia and Technical Working Group in Serbia.

As one can see, the clear tendency to concentrate all the main regulatory functions within the DNA Secretariat may be identified as a common feature in all the countries examined. However, when it comes to the definition of the specific competences of the support bodies foreseen to help the DNA Secretariat in discharging its duties, two different approaches may be detected in the four countries analysed. On the one side there is a model based on the delegation of some (more specifically) technical duties to a technical body, named Technical Secretariat (Albania) or Technical Operative Secretariat (Montenegro). On the other side, there is a model based on the retention of all regulatory and technical functions by the DNA

Secretariat, to be assisted by a technical body which is in fact much more "politically" than technically oriented. Such a body is called Technical Advisory Group (Macedonia) or Technical Working Group (Serbia).

15.4 The DNA Procedures

The third relevant issue which should be examined in the present context relates to the comparison among the DNA procedures for the CDM projects proposals approval which have been identified and selected in different Western Balkan countries examined. To this respect too, the four Western Balkan countries analysed seem to have made similar choices, in line with the experience of most of the other relevant countries in other areas of the world.

Some common relevant features which may be detected in the analysis of the national procedures adopted in the four countries under scrutiny may consist in the tendency to the short duration of the evaluation procedure as well as in the integration of the Environmental Impact Assessment (wherever applicable) and the public consultation within the main CDM assessment procedure, in line with the applicable EC legislation on these matters. Such features have in common the declared scope of trying to reduce time and costs of the CDM procedure, thus trying to provide greater incentives to potentially interested investors to choose the Western Balkans.

As to the evaluation phase in particular, a difference may be detected between three of the countries examined (Albania, Macedonia and Serbia) on the one side and another one (Montenegro) on the other side. To this respect, in fact, the three above mentioned countries have opted for a more traditional evaluation procedure based on two main phases, the first one devoted to a preliminary screening of the projects, usually in the form of a PIN, and a second one related to a more in depth analysis of the CDM project proposal, normally in the form of a PDD, aiming at a final decision on its approval/rejection. Montenegro, instead, decided not to follow such a traditional two-phases procedure and made a simpler choice, based on a single step procedure, whereby no prior submission of the PIN is required and the CDM projects proponents may directly present the relevant PDD to the competent DNA Committee. This choice should, in the aim of the Montenegrin legislator, lead to an even more speedy and cost-effective evaluation procedure.

15.5 Final Remarks

In conclusion, it should be assessed whether the comparative analysis on the DNA establishment and functioning of the four Western Balkan countries examined may be of some relevance for other countries around the world. In other terms, which ones may be the lessons learned from our analysis having a paramount importance going beyond their geographical area of application?

The answer to this question may be multi-fold. For instance, with regard to the choice of the DNA structure, it seems that the common tendency of all the countries examined to opt for a Single Ministry model and a working structure based on a two-unit administrative model, coped with the decision not to create a new administrative body to perform the DNA functions, may be a simple and cost-effective solution, which also minimises the problems of coordination with other bodies of the public administration.

Then, with regard to the competences, the tendency to concentrate all the main regulatory functions within the DNA Secretariat and to distinguish clearly the technical from the political decisions seems to be a good solution to increase transparency, ensure a greater effectiveness and promote the application of due process criteria within the evaluation phase. In addition to that, the tendency seen in some countries, to engage the other possibly interested Ministries in the evaluation procedure only when this appears strictly necessary with reference to the type of project concerned seems to be a positive one, in terms of easing the terms of the evaluation procedure.

Moreover, with reference to the DNA procedures adopted, some of the common relevant features adopted in the four selected countries of the Western Balkans, which tend to promote a short duration of the evaluation procedure or the integration of the Environmental Impact Assessment (wherever applicable) and the public consultation within the main CDM assessment procedure, are to be welcomed, insofar they all go in the same direction of reducing complexity, increasing effectiveness and minimising the duration of the evaluation procedure for proposed CDM projects.

Finally, before concluding, it may be worth mentioning the timing of the ratification of the UNFCCC and in particular of the Kyoto Protocol by the four countries under scrutiny, in order to assess whether the time of the ratification may have influenced the choices made by the national legislators on the structure, the competences and the procedures.

In this sense, it may be recalled here that while the four countries examined ratified the Framework Convention during quite a long time, ranging from 1994 to 2001 (with the exception of the Republic of Montenegro which ratified it just in 2006, shortly after becoming fully independent), the Kyoto Protocol was ratified by the same countries in a much more limited period of time, ranging from 2004 to 2007. In particular, two countries, namely the Republic of Albania and the Republic of Macedonia ratified the Kyoto Protocol in 2004, while the other two countries, namely the Republic of Montenegro and the Republic of Serbia ratified in 2007, following their division, despite some efforts which had been made to promote the ratification of the Kyoto Protocol even during the period of brief existence of the State Union of Serbia and Montenegro.

However, the analysis of the choices made in the countries examined with regard to the DNA's structure, the competences and the procedures seems to show that the timing of the ratification has not been an essential element to guide such choices, which have been mostly influenced by political considerations and are tailor-made on the specific circumstances of each country. The only particular exception to such

a consideration may be represented by the case of Montenegro, which, more than the other countries considered, seems to have intentionally made a series of choices related to a sharper clear-cut demarcation of competences between the regulatory authority (DNA Committee) and the technical support body (Technical Operative Body, or TOB), as well as to the modalities to ensure the participation of the other relevant Ministries only when strictly necessary with regard to the type of project proposed, which (at least theoretically) seem to be more "efficiency" oriented with respect to the traditional solutions adopted in the other countries.

Bibliography

Agrotec Consortium (2005) Assessment of opportunities and operational implications for developing additional carbon financing activities

Bodansky D (1993) The UN framework convention on climate change: a commentary. Yale J Int Law, 18:451–558

Bothe M, Rehbinder E (2005) Climate change policy. Eleven International Publishing, The Netherlands

Bugge HC, Voigt C (2008) Sustainable development in international and national Law. Europa Law Publishing, Groningen

Castro M (2002) The functions of a national authority. In: Figueres C (ed) Establishing national authorities for the CDM: a guide for developing countries. International Institute for Sustainable Development and the Center for Sustainable Development in the Americas, Winnipeg/Washington, DC

Chaparro M (2006) DNA structure and CDM project approval process in five Latin American countries: Argentina, Brazil, Chile, Mexico, and Peru. In: CDM Investment Newsletter No. 2/2006. Bureau of Environmental Analysis and Climate Business Network, Nairobi/Vienna

Douma W.Th, Massai L, Montini M (eds) (2007) The Kyoto Protocol and beyond: legal and policy challenges of climate change. T.M.C. Asser Press, The Hague

Ellis J, Wrinkler H, Corfee-Morlot J, Gagnon-Lebrun F (2007) CDM: taking stock and looking forward. Energy Policy 35:15–28

Figueres C (ed) (2002) Establishing national authorities for the CDM. A guide for developing countries. International Institute for Sustainable Development and the Center for Sustainable Development in the Americas, Winnipeg/Washington, DC

Figueres C (2004) Institutional capacity to integrate economic development and climate change considerations: an assessment of DNAs in Latin America and the Caribbean. Inter American Development Bank, Washington, DC

FONAM (Fondo Nacional del Ambiente-Perú) (2006) Clean development mechanism: a business opportunity in Peru. FONAM, Lima

Freestone D, Streck C (2005) Legal aspects of implementing the Kyoto Protocol mechanisms. Oxford University Press, Oxford

Holm Olsen K (2007) The clean development mechanism's contribution to sustainable development: a review of the literature. Climate Change 84:57–73

Hoogwijk MM (2004) On the global and regional potential of renewable energy sources. Ph.D. thesis, Utrecht University, The Netherlands, March 12

IGES, CREIA (2005) CDM country guide for China: first edition. IGES, Kanagawa

IGES (2005a) CDM country guide for India: second edition. IGES, Kanagawa

IGES (2005b) CDM country guide for Cambodia: second edition. IGES, Kanagawa

Kraemer L (2006) Some reflections on the EU mix of instruments on climate change. In: Peeters M, Deketelaere K (eds) EU climate change policy – the challenge of new regulatory initiatives. Edward Elgar, Cheltenham, UK

Krey M (2004) Transaction costs of CDM projects in India – an empirical survey. HWWA, Discussion Paper, Hamburg
Lee MK (ed) (2004) CDM information and guidebook: second edition. UNEP Risø Centre, Rosklide
Metz B, Hulme M (eds) (2005) Climate policy options post 2012: European strategy, technology and adaptation after Kyoto. Climate Policy 5:243–391
Michaelowa A (2003) CDM host country institution building. Mitig Adapt Strategies Global Change 8:201–220
Michaelowa A (2005) Creating the foundation for host country participation in the CDM: experiences and challenges in CDM capacity building. In: Yamin F (ed) Climate change and carbon markets – A handbook of emission reduction mechanisms. Earthscan, London
Montini M (2007) The compliance regime of the Kyoto Protocol. In: Douma W Th, Massai L, Montini M (eds) The Kyoto Protocol and beyond. TMC Asser Press, The Hague
Montini M (2008a) The role of legal principles for environmental management. In: Clini C, Musu I, Gullino ML (eds) Sustainable development and environmental management – experiences and case studies. Springer, The Netherlands
Montini M (2008b) Sustainable development within the climate change regime. In: Bugge AC, Voight C (eds) Sustainable development in international and national law. Europa Law Publishing, Groningen
Morera L, Cabeza O, Black-Arbeláez T (2003) The state of development of national CDM offices in Central and South America, CCNM/GF/SD/ENV(2003) 9/FINAL. OECD, Paris
Netto M, Kai-Uwe B Schmidt (2005) CDM project cycle and the role of the UNFCCC Secretariat. In: Freestone D, Streck C (eds) Legal aspects of implementing the Kyoto Protocol mechanisms: making Kyoto work. Oxford University Press, Oxford
Peeters M, Deketelaere K (eds) (2006) EU climate change policy: the challenge of new regulatory initiatives. Edward Elgar, Cheltenham, UK
Romanin Jacur F (2009) Paving the road to legitimacy for CDM institutions and procedures: learning from other experiences in international environmental governance. Carbon Climate Law Rev 3:69–78
Rosales J, Pronove G (2003) An implementation guide to the clean development mechanism: putting the Marrakech accords into practice. United Nations, New York, 10
Sands P (1992) The United Nations Framework Convention on Climate Change. RECIEL 1:270–277
Shvangiradze M (2005) Country case study: Designated national authority in Georgia. Ministry of Environmental Protection and Natural Resources of Georgia, National Agency of Climate Change, Tiblisi
Streck C, Lin J (2008) Making markets work: a review of CDM performance and the need for reform. EJIL 19:409–442
UNDP (2003) The clean development mechanism: a user's guide. UNDP Bureau for Development Policy, New York
UNDP (2006a) How to guide – national and Institutional frameworks for the Kyoto Protocol flexible mechanism in Eastern Europe and the commonwealth of independent states
UNDP (2006b) The clean development mechanism. An assessment of progress
UNDP (2007a) Guidebook to financing CDM projects. Denmark
UNDP (2007b) Macedonian national strategy for clean development mechanism of the Republic of Macedonia for the first commitment period of the Kyoto Protocol 2008 – 2012
UNEP (2004a) CDM sustainable development impacts
UNEP (2004b) Legal issues guidebook to the clean development mechanisms
US Department of State (2006) Investment climate statement
Victor D (2004) The collapse of the Kyoto Protocol and struggle to slow global warming. Princeton University Press, Princeton, NJ
Verheyen R (2005) Climate change damage and international law. Martinus Nijhoff Publishers, The Netherlands

Werksman J (2008) The “legitimate expectations” of investors and the CDM: balancing public goods and private rights under the climate change regime. CCLR 1:95
World Bank (2003) The establishment of designated national authorities under the clean development mechanism of the Kyoto Protocol
World Bank (2008) State and trends of the carbon market
World Bank (2009) State and trends of the carbon market
Yamin F, Depledge J (2004) The international climate change regime. Cambridge University Press, Cambridge, UK

Index