Ryszard M. Czarny

The High North

Between Geography and Politics

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ISBN 978-3-319-21661-4 ISBN 978-3-319-21662-1 (eBook)
DOI 10.1007/978-3-319-21662-1

Library of Congress Control Number: 2015944751

Springer Cham Heidelberg New York Dordrecht London

Cover design: deblik, Berlin, Germany

Printed on acid-free paper

Springer International Publishing AG Switzerland is part of Springer Science+Business Media (www.springer.com)

To the loving memory of my Father

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Abbreviations and Acronyms

ABC	Arctic Biodiversity Coalition
AC	The Arctic Council
ACA	Arctic Change Assessment
ACCE	Antarctic Climate Change and the Environment
ACCOnet	Arctic Circumpolar Coastal Observatory Network
ACD	Arctic Coastal Dynamics
ACEX	Arctic Coring Expedition
ACIA	Arctic Climate Impact Assessment
ACSNet	Arctic Climate System Network
ACSYS	Arctic Climate System Study
AGU	American Geophysical Union
AHDR	The Arctic Human Development Report
AHHEG	Arctic Human Health Experts Group
AHHI	Arctic Human Health Initiative
AIDA	Atmospheric Investigations on a Drifting observatory over the Arctic Ocean
AMAP	Arctic Monitoring and Assessment Program
AMSTEC	Japan Agency for Marine-Earth Science and Technology
AOS	Arctic Observing Summit
AOSB	Arctic Ocean Sciences Board
APECS	Association of Polar Early Career Scientists
APEX	Arctic Palaeoclimate and its Extremes
ART	Arctic in Rapid Transition
ASI	Arctic Social Indicators
ASSW	Arctic Science Summit Week
ATCM	Antarctic Treaty Consultative Meeting
AWI	Alfred Wegener Institute for Polar and Marine Research
BCFG	Billion Cubic Feet of Natural Gas
BEST	Bering Ecosystem Study
BipAG	Bipolar Action Group

CAFF	Conservation of Arctic Flora and Fauna
CALM	Circumpolar Active Layer Monitoring
CBMP	Circumpolar Biodiversity Monitoring Program
CCMVal	Climate—Chemistry Model Validation
CEFAS	Centre for Environment, Fisheries, and Aquaculture Science
C-GTOS	Coastal Global Terrestrial Observing System
CITES	Convention on the International Trade of Endangered Species (Konwencja o międzynarodowym handlu zagrożonymi gatunkami)
CliC	Climate and Cryosphere Project
CMIP	Coupled Model Intercomparison Project
COMAAR	Co-ordination of Observation and Monitoring of the Arctic for Assessment and Research
COMNAP	Council of Managers of National Antarctic Programs
COP15	2009 United Nations Climate Change Conference
COPES	Coordinated Observation and Prediction of the Earth System
CPE	Comité Polar Español
CRS	Congressional Research Service
CryOS	Cryosphere Observing System
CSA	Canadian Space Agency
DBO	Distributed Biological Observatory
ECORD	European Consortium for Ocean Research Drilling
ECV	Essential Climate Variables
EEZ	Exclusive Economic Zone
EGU	European Geophysical Union
EIWG	Extractive Industries Working Group
EOC	Education, Outreach, and Communication
EPB	European Polar Board
ERICON	European Research Icebreaker Consortium
ESA	European Space Agency
ESF	European Science Foundation
ESM	Earth System Models
ESRI	European Strategy Forum on Research Infrastructures
EUCOP	European Conference on Permafrost
FARO	Forum of Arctic Research Operators
GCOS	Global Climate Observing System
GDEM	Global Digital Elevation Model
GDP	Gross Domestic Product
GEUS	Geological Survey of Denmark and Greenland
GIC	Glacier and Ice Cap
GICAC	Glaciers and Ice Cap Assessment Consortium
GFCS	Global Framework for Climate Services
GGD	Global Geocryological Database

GIN	Greenland–Iceland–Norwegian seas
GLACIODYN	Dynamic Response of Arctic Glaciers to Global Warming
GTN-P	Global Terrestrial Network on Permafrost
GTOS	Global Terrestrial Observing System
GOOS	Global Ocean Observing System
HERMIONE	Hotspot Ecosystem Research and Man's Impact On European Seas
IACP	Institute for Applied Circumpolar Policy
IACS	International Association of Cryospheric Sciences
IAI	International Antarctic Institute
IAMAS	Association of Meteorology and Atmospheric Science
iAOOS	Integrated Arctic Ocean Observing System
IAPSO	International Association for the Physical Sciences of the Oceans
IAR	Agencja Radiowa
IASC	International Arctic Science Committee
IASSA	International Arctic Social Sciences Association
ICAM	International continental Arctic margins
ICARP	International Conference on Arctic Research Planning
ICASS	International Congress of Arctic Social Sciences
ICC	Inuit Circumpolar Council
ICCH	International Congress on Circumpolar Health
ICEHUS	Ice Age Development and Human Settlement in Northern Eurasia
ICEMASS	Response of Arctic Ice Masses to Climate Change
ICES	International Council for the Exploration of the Sea
ICS	International Council for Science
ICSIH	The International Commission for Snow and Ice Hydrology
ICSU	International Council for Science
IG	Initiating Group
IGY	International Geophysical Year
IHP	International Hydrological Programme
ILO	International Labour Organization
INCHR	International Network for Circumpolar Health Research
INTERACT	International Network for Terrestrial Research and Monitoring in the Arctic
IODP	Integrated Ocean Drilling Program
IPA	International Permafrost Association
IPCC	Intergovernmental Panel on Climate Change
IPD	International Polar Decade
IPY	International Polar Year
IPY IPO	International Polar Year International Program Office
ISAC	International Study of Arctic Change

ISMASS	Ice Sheet Mass Balance and Sea Level
IUCH	The International Union for Circumpolar Health
IUCN	World Conservation Union
IUGG	International Union of Geodesy and Geophysics
IWC	International Whaling Commission
JAXA	Japan Aerospace Exploration Agency
JC	Joint Committee
JCAR	Japan Consortium for Arctic Environmental Research
JSC	Joint Scientific Committee
LAII	Land–Atmosphere–Ice Interactions
LANDSAT	Series of Earth-observing satellite missions jointly managed by NASA and the US Geological Survey
LGM	Last Glacial Maximum
LNG	Liquified Natural Gas
LoA	Letter of Agreement
LOICZ	Land–Ocean–Interactions in the Coastal Zone
LOMROG	Lomonosov Ridge Greenland Expedition
MAGICS	Mass balance of Arctic Glaciers and Ice sheets in relation to the Climate and sea level changes
MMBNGL	Million barrels of natural gas liquids
MMBO	Million barrels of oil
MOCA	Meltwater routing and Ocean–Cryosphere–Atmosphere response project
MoU	Memorandum of Understanding
NAG	Network on Arctic Glaciology
NAMMCO	The North Atlantic Marine Mammal Commission
NAO	North Atlantic oscillation
NaSMAC	Ny-Ålesund Science Managers Committee
NcoE	Nordic Centre of Excellence
NEFCO	Nordic Environment Finance Cooperation (The Nordic Council of Ministers)
NERI	National Environmental Research Institute
NIPR	National Institute of Polar Research
NORA	The North Atlantic Cooperation
NRC	National Research Council
NSF	National Science Foundation
NSIDC	National Snow and Ice Data Center (Boulder, California)
NQA	Not quantitatively assessed
NWP	Numerical Weather Prediction
OSC	Oslo Science Conference
PAN	Polar Archeology Network
PAR	Pacific Arctic region
PCSP	Polar Continental Shelf Program

PIC	Polar Information Commons
POLENET	Polar Earth Observing Network
PONAM	Polar North Atlantic Margin
PPP	Purchasing Power Parity
PRIC	Polar Research Institute of China
PROMICE	Programme for Monitoring of the Greenland Ice Sheet
QSR	Quaternary Science Reviews
QUEEN	Quaternary Environment of the Eurasian North
RCM	Regional Climate Model
RINK	Respons af Indlandsisen til Naturlige Klimaændringer
RRS	Royal Research Ship
RSL	Relative sea level
R/V	Research Vessel
SAC	State of the Arctic coast
SAI	Stefansson Arctic Institute
SAON	Sustaining Arctic Observing Networks
SAR	Search and Rescue
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
SDWG	The Sustainable Development Working Group
SEARCH	Study of Environmental Arctic Change
SERCE	Solid Earth Responses and Influences on Cryospheric Evolution
SG	Steering Group
SIOS	Svalbard Integrated Earth Observing System
SLCFs	Shortlived Climate Forces
SLICA	Survey of Living Conditions in the Arctic
SOOS	Southern Ocean Observing System
SPARC	Stratospheric processes and their role in climate
SPICE	Space-borne Mmeasurements of Arctic Glaciers and Implications for Sea Level
SRP	Scientific Research Programme
SSG	Scientific Steering Group
SVALI	Stability and Variations of Arctic Land Ice
SSC	Scientific Standing Committee
SWIPA	Snow, Water, Ice, and Permafrost in the Arctic
THC	Thermohaline Circulation
TSP	Thermal State of Permafrost
UArctic	University of the Arctic
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization

UNFCCC	United Nations Framework Convention on Climate Change
UNIS	The University Centre in Svalbard
USGS	United States Geological Survey
WCC	World Climate Conference
WCC-3	Third World Climate Conference
WCRP	World Climate Research Programme
WG	Working Group
WMO	World Meteorological Organization
WTO	World Trade Organization
WWF	World Wildlife Fund

Chapter 1
Introduction

For if there is one lesson that the biting cold and the dark winters of the Arctic should teach us, it is that no one survives alone out there for long.
Jonas Gahr Stoere, Sergey Lavrov—October 1, 2010

Abstract The book is a compendium of fundamental information and data not only presenting the facts but providing political, economic, social, formal and legal frames of the processes. Its overall structure and the arrangement of individual chapters, complemented with additional references, should allow for identifying the general tendencies in their contemporary political and social contexts, and the inextricable practice of the current day.

Keywords European high north · Arctic · Global processes · Chances for development · Potential conflicts

The world of the North can be truly fascinating. One finds it hard to resist its unique atmosphere, the wild and barely accessible landscapes, the emptiness, the loneliness, and the omnipresence of nature filling all senses to the brim.

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_1

The Hans Glacier, Spitsbergen (Photo by R.M. Czarny)

This yet not fully explored realm is an area of great hope and in numerous cases also of challenges difficult to identify and outcomes impossible to predict. They assume a very special significance as they concern the vital zones of our globe in which the consequences of what is happening may become an extremely complex combination of opportunities on the one hand and almost immediate threats on the other. Put differently, they may impact international relations on a scale greatly surpassing the interests only of our hemisphere.

This region is the European High North and the Arctic in particular. It is beyond doubt one of the key areas of the global system, in which the melting of ice and permafrost seems to open new maritime transport routes and allow access to the previously unavailable deposits of natural resources. This creates a potential source of disputes or even conflicts in the process of establishing the ownership of natural resource deposits and the delimitation of the boundaries. Hence the area has been extremely active and is characterized by a certain nervousness displayed by the states of the region.

Because of the growing world demand for energy and, and consequently, the control over its deposits and resources, for the past two or even three decades the matters of energy security (Czarny 2009, pp. 59–65) have occupied not only the minds of scientists but also and politicians responsible for the security and foreign policy of individual states (see Cziomer 2008). All that springs from the fact that, among others, high energy prices on the one hand, and technological advances on the other, made exploitation of crude oil viable and profitable in the areas inaccessible before.

The observed climate change all over the world[1] poses an additional risk not only for Europe but the entire globe. It brings several challenges characterized by, if not dominated by, risks connected to the natural environment. The consequences of climate change threaten the traditional, ages-old sources and means of subsistence of the indigenous population. Changes in sea temperatures may also lead to altering the migration patterns of certain maritime fauna, including several fish species, thus presenting new challenges for the international management of fisheries. Clashing interests breed competition of various entities, compounded by significant and yet unresolved issues of legal nature. Moreover, the issues of security in the military strategic sense also come into play and seem to be born anew as new problems arise.[2]

All of the above is inextricably linked with today's world of global economy which has become much more flexible and open, and seemingly self-regulating. It is a reality which presents us with a full range of new opportunities but at the same time poses new enormous challenges.

Therefore, following the theme of challenges, it seems to be interesting to attempt the task of characterizing the High North in the context of the afore-mentioned great opportunities and equally significant and much unpredictable threats. Such an undertaking involves a necessity of tackling a series of extremely important themes, to mention only the defining as precisely as possible where the region is actually located (and what it is composed of), its place in a new world order, together with the imperative obligation of describing the emerging opportunities and chances there, while all of them are happening in the much complex world of interactions, cooperation and competition ever-present within the dynamics of global processes.

In addition, the development and evolution of the international community present there or surrounding the area have a natural influence on the condition of the region as a whole, and impact the cooperation of all associated stakeholders who are subjects of international law. The currently binding world order exerts more influence than ever before. Two decades after the end of the Cold War, the trans-border exchange between Russia and its Arctic neighbors, after a slow start and not very promising beginnings, is finally gaining momentum and shows signs of improvement and growth. It is growing on political, cultural, and economic levels.[3] The consecutive stages of the European Union enlargement have opened new horizons for cooperation and brought new issues to the daily agenda.[4] They are of utmost interest and the much diversified activities of several countries are a

[1]We can say that "Energy security and climate change challenge the modern world,"—from the statement by foreign ministers of Denmark and Estonia, Per Stig Moeller and Urmas Paet. *Rzeczpospolita*, December 07, 2007.

[2]*Geopolitics in the High North. Multiple Actors, Norwegian Interests* (A five-year (2008–2012) research programme financed through the Norwegian Research Council and conducted by the Norwegian Institute for Defence Studies with partners and associates). Retrieved February 07, 2011 from www.norden.org.

[3]See *Total Economy Database* (2008).

[4]See Eðvarðsson Runar (2007).

response to the call of the moment and the necessity of meeting new challenges, and that engagement seems to exhibit richness of thematic range and proves the great attentiveness.[5] All that concerns not only the obviously engaged states like the Nordic countries or Russia but also a number of seemingly indirectly involved state or non-state players of the contemporary international scene, including the growing economies of Asia which began articulating their vital interest in the Arctic and the European High North. The activities comprise joint work, cooperation with the regional organizations and on projects created, among others, by the European Union or concerning it, as well as exchange of points of view on the specific issues of the High North. In practice, this proves real interest and not only political rhetoric, and that clearly verifies the significant potential of the region and its great opportunities for economic growth in at least some sectors of economy.

Since the region evokes so much interest, I have decided to present the European High North in this work, with its range of opportunities, great chances of development, but also its potential of generating conflicts not only for the northern part of our globe. Fully aware that the issues are dynamic and therefore evolving, and that tomorrow may bring new developments, i.e. without the time perspective allowing for a scholarly diligent analysis so much enjoyed by historians, I have decided to focus on a few fundamental problems:

- climate changes bearing a series of significant consequences in every possible area under discussion;
- contemporary development issues of the High North defining the region today and in the foreseeable future;
- economic potential of the region and its international implications;
- organizational forms and possibilities of international cooperation in the region;
- particular interest in the region's problems of the Nordic countries and the Russian Federation;
- assessment of the state of current opportunities and challenges in the Arctic as the pivotal point of the High North.

The topic is very current, if not pressing and imperative, and far from simple as it is multi-faceted and its complexity compounded by multiple and hard to predict determinants. The presented work examines the problems mostly in their international dimension of the bilateral and multilateral relations. It is a result of great many consultations, meetings, conferences but above all own research, diligently planned and meticulously and, immodestly, effectively realized. All of it concerns the most important, in view of the author, and most recent problems of the High North, including the Arctic, the European countries of the North, and organizational forms of cooperation in the region. Hopefully, what provides for the thematic cohesion are the **contemporary approach to research findings and the potential transformations**.

[5]See Ketels (2008).

This work is not only modified and enlarged but above all an updated version of the monograph published by the University of SS. Cyril and Methodius in Trnava (The Slovak Republic) and titled *The Imperative High North: Opportunities and Challenges*. The book is a compendium of fundamental information and data not only presenting the facts but providing political, economic, social, formal and legal frames of the processes. Its overall structure and the arrangement of individual chapters, complemented with additional references, should allow for identifying the general tendencies in their contemporary political and social contexts, and the inextricable practice of the current day.

As for the methodology, the following approaches have been applied: the historical method, the qualitative method, the analyses of the content and of the system, the comparative analysis, and the institutional and legal analysis.

The author is fully aware that the work can neither give all the answers to various questions nor dispel doubts springing from simple practice. Similarly, the work does not exhaust the subject matter of the discussed issues each of which could become a topic of a separate book. The author hopes, however, that through presenting his own analysis and providing a set of tools for research, he might help the readers conduct their own search. Time will show whether the work can instigate similar initiatives and stimulate a broader debate on the subject in the academia.

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Chapter 2
The High North

Abstract The High North is currently one of the key areas on a global scale whose importance for Europe cannot be overestimated. It also concerns the regions of the USA and Canada (which are sometimes referred to as Far North), but in the European context—which is the subject matter of this work—it encompasses both a part of the continent, and the islands as well as the seas (the Barents Sea, the Greenland Sea) situated beyond the polar circle. In the era of high prices of energy resources and climate warming, the region is characterized by a high level of activity and also a certain nervousness of the states of that region, both of which influence international relations on a scale going beyond the interests of our hemisphere only. In practice, that involves a clear orientation of interests, and not political rhetoric only, the more so as the region truly possesses a high potential allowing for economic growth in at least a few sectors.

Keywords Key area globally · Discoveries, scientific research · International interests · Arctic resources · Arctic sea routes

2.1 Basic Concepts, Terminology and Definitions

High North (in Norwegian: *nordområdene*—the northern areas), as well as related notions are categories wide open to interpretation.[1] "It should be emphasized that »the northern areas« is a special term which is used in a particular way in Norwegian political discourse. »The northern areas« is a land whose territorial borders do not have to be precisely delineated" (Kubka 2011, p. 43). Their geographical specification can alter depending on the country and intentions of the

[1]L.C. Jensen and G. Hønneland write: "The phrase (High North) was introduced as the English equivalent of the Norwegian term *nordområdene* (the northern areas) in the mid-1980s, eventually becoming adopted by the Norwegian authorities at the beginning of the current century. The concept has no immediate corresponding counterpart in academic or political discourse outside Norway, and it is not self-explanatory to foreigners" (Jensen and Hønneland 2011).

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_2

user. This work employs the terms "the European High North," "High North," or "the northern areas" in an interchangeable and equivalent manner, and those terms are limited to the European zone exclusively and related more to their practical use than theoretical connotations. They include "those parts of the Nordic countries and Russia that participate in the Barents Euro-Arctic Region, the Norwegian Sea, the Barents Sea, and the southern parts of the Polar Sea. The totality of the areas north of the polar circle (the whole circumpolar region) will be referred to by the term *the Arctic*"[2] (www.norden.org, p. 7).

Ronald O'Rourke takes a similar approach writing that "Some observers use the term 'high north' as a way of referring to the Arctic. Others make a distinction between the 'high Arctic'—meaning, in general, the colder portions of the Arctic that are closer to the North Pole—and other areas of the Arctic that are generally less cold and further away from the North Pole, which are sometimes described as the low Arctic or the subarctic." (O'Rourke 2012, p. 5).

The end of the Cold War brought a change in the perception of the northern areas. Once, the attention was exclusively focused on the politics of security, but today the issues of security and sovereignty have been enlarged by the addition of concerns related to climate changes, prospects of economic development, environment protection, and conditions of life. A positive development in the North is of paramount importance not only to the Nordic states (and Norway in particular) or Russia, but also other countries with vital interests in this region.

The High North is currently one of the key areas on a global scale whose importance for Europe cannot possibly be overestimated, although the knowledge of an average European on the subject is rather limited. It also concerns the regions of the USA and Canada (which are sometimes referred to as Far North), but in the European context—which is the subject matter of this work—it encompasses both a part of the continent, and the islands as well as the seas (the Barents Sea, the Greenland Sea) situated beyond the polar circle. The area straddles the territories of a few countries, namely Denmark, Norway, Sweden, Finland, and the Russian Federation. It is worth-remembering, however, that the majority of the territories classified as the High North in Europe, is actually located within the borders of the Kingdom of Norway.[3] In the era of high prices of energy resources and climate warming, the region is characterized by a high level of activity and also a certain nervousness of the states of that region, both of which influence international relations on a scale going beyond the interests of our hemisphere only. In practice, that involves a clear orientation of interests, and not political rhetoric only, the more so as the region truly possesses a high potential allowing for economic growth in at least a few sectors.[4]

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[2]*Geopolitics in the High North, Multiple Actors. Norwegian Interest*. A five-year (2008–2012) research programme financed through the Norwegian Research Council and conducted by the Norwegian Institute for Defence Studies with partners and associates.

[3]See http://www.regjeringen.no/nb/dep/ud.

[4]More on the subject in Chap. 5.

The region is characterized by a richness of the fauna—very large fishing stocks, which implies a dynamic development of the fishing industry (www.regjeringen.no), and flora. It should be emphasized that in 2004 half of 15,600 Norwegian fishermen practiced their trade within the waters of the High North (with the use of 60 % of fishing boats).[5] A constantly growing demand in the international market for the high-quality white fish from the Barents Sea made fishing these waters a multi-billion (including also the U.S.) industry (www.norden.org, p. 2).

The area under examination is also of great strategic importance due to "very large fresh water supplies trapped or frozen in glaciers and, above all, a great abundance of deposits, among others, of crude oil and natural gas" (www.regjeringen.no). However, the policy of raw material extraction has to be implemented very carefully. In order to assure security of acquiring these materials, the Norwegian government has to cooperate in this matter not only with Sweden and Finland, but also with Russia (www.regjeringen.no). In addition, high energy prices and technological advances made crude oil and natural gas deposits (www.regjeringen.no) reachable in the areas (www.regjeringen.no) previously considered inaccessible.[6] Similarly impactful are climate changes and the opening of new Arctic shipping lanes[7] which considerably shorten the distance from Europe and North America to Asia.

In short, the High North arises as a leading area of tremendous possibilities in the upcoming years, and the afore-mentioned Norwegian discourse on the High North issues should induce one and all to terminate the short-sighted and egocentric lack of understanding on the part of scientific experts and decision-makers in other countries as regards those issues. Therefore, following the Norwegian attitude, we may say that the High North, or European Arctic—"occasionally, when referring to the European part of this area (the Arctic), the term »Far North« is used" (Kubiak 2012, p. 23)—not only reflects the Norwegian perception of the importance of the region, but also concerns the interactions appearing in this area, as well as challenges and opportunities defining it.

When the authors of the Danish Arctic strategy write: "The Kingdom of Denmark is centrally located in the Arctic… The Arctic makes up an essential part of the common cultural heritage, and is home to parts of the Kingdom's population" (Denmark 2011, p. 8), they use the term "the Arctic" as a clear and obvious one. Similarly do the Russians or Norwegians when explaining their strategies regarding the High North. Nevertheless, the literature is far from consistent in understanding the borders and territorial reach of the areas defined by that common term. Even members of the Arctic Governance Project (AGP[8]) in the part "Defining the Arctic"

[5]See www.diplomatie.gouv.fr/fr/IMG/pdf/GarcinE_F.pdf. Retrieved May 10, 2011.

[6]See Chap. 5.

[7]See Footnote 6.

[8]The Arctic Governance Project (AGP) is an unofficial initiative supported by a group of private funders, and intended to bring together preeminent researchers, members of the policy community, and representatives of indigenous peoples in the interests of exploring ways to achieve a sustainable and just future for the Arctic. The term "we" in this report refers to the members of the

state the following: "There is no universally accepted definition of the Arctic. We follow the practice of the Arctic Council in treating the Arctic as a circumpolar region encompassing both marine and terrestrial systems extending southward from the North Pole, covering about 8 % of the Earth's surface, including areas located within the jurisdiction of eight States, providing a homeland for many indigenous peoples, and including altogether some 4 million residents. But this region is highly diverse in biophysical, socioeconomic, and cultural terms" (Arctic Governance 2010).

Leaving aside for the moment the Eurocentric perception of the discussed issue, it could be advisable to present the American point of view on the matter. It emphasizes that many definitions of the Arctic spring from various descriptions of the land and maritime areas encompassed by this region. It is also used in a variety of ways in political discussions in which the employed terms may carry different meanings. For example, the CRS Report (O'Rourke 2012) although not based on a single designation, still attempts a definition: "The most common and basic definition of the Arctic defines the region as the land and sea area north of the Arctic Circle (a circle of latitude at about 66.34°N). For surface locations within this zone, the sun is generally above the horizon for 24 continuous hours at least once per year (at the summer solstice) and below the horizon for 24 continuous hours at least once per year (at the winter solstice). The Arctic Circle definition includes the northernmost third or so of Alaska, as well as the Chukchi Sea, which separates that part of Alaska from Russia, and U.S. territorial and Exclusive Economic Zone (EEZ) waters north of Alaska. It does not include the lower two-thirds or so of Alaska or the Bering Sea, which separates that lower part of the state from Russia" (O'Rourke 2012).

In turn, the definition adapted by the Arctic Monitoring and Assessment Programme (AMAP),[9] states that the Arctic "essentially includes the terrestrial and marine areas north of the Arctic Circle (66°32′N), and north of 62°N in Asia and 60°N in North America, modified to include the marine areas north of the Aleutian chain, Hudson Bay, and parts of the North Atlantic, including the Labrador Sea" (Geographical Coverage).

Also for us, Poles, regardless of the contribution and achievements of Polish scientists and discoverers in the northern regions, the term is not unambiguous, hence the necessity of clarification.

The name "of this geographical region finds its roots in the Greek word *Arctos* which means »bear«. It is also related to the constellations of Little Dipper (or Little Bear) and Big Dipper (or Big Bear), which are located near the Polaris also called

(Footnote 8 continued)

AGP's Steering Committee and the Executive Secretary. Committee members include: Hans Corell, Robert Corell, Udloriak Hanson, Paula Kankaanpää, Jacqueline McGlade, Tony Penikett, Stanley Senner, Nodari Simoniya, and Oran Young. The Executive Secretary is Else Grete Broderstad, at the Centre for Sami Studies, University of Tromsø. The H. John Heinz III Center for Science, Economics and the Environment serves as the fiscal agent for the project.

[9]AMAP is a working group of the Arctic Council.

the North Star" (Makowski and Rossa 2011, p. 195). The Arctic is a part of our globe encompassing both lands and waters, and includes the polar and sub-polar zones in the Northern Hemisphere around the North Pole. It is one of the wildest and at the same time least explored and least accessible places on Earth. The names of its seas and rivers are not widely known, although the Siberian Yenisei and Lena Rivers are not only huge, but they also carry more water to the sea than, for example, the Mississippi or the Nile. Greenland,[10] the biggest island in the world, is six times bigger than, for example, Germany, but it is populated by only 57,000 people, mostly by the Inuit inhabiting small coastal settlements. In all the Arctic, also called the Arctic Circle (with a small margin in the South), nearly half of the population of 4 million lives in a few post-Soviet cities like Murmansk or Magadan. This region, to a large degree untouched, Sykulski (2009, pp. 6–7) defines as "an area of the globe around the North Pole. There exist no clearly defined borders of the Arctic." Its so-called astronomical border, which is such a broad interpretation that it lacks common acceptance, is the Arctic Circle (66°30′40″N) covering the area of approximately 21 million km^2, in which there occurs a phenomenon of the polar night, where the northern lights can shine both day and night (Ulanowski 2013). The division onto the polar day and the polar night is caused by the very same reason why seasons of the year occur: the inclination of the Equator to its circumsolar orbit. The angle of this inclination varies, and currently stands at 23.5°. As stated by T. Ulanowski, "It means that 66.5° of Northern latitude marks the border delineating the occurrence of polar nights and days. It is so-called Polar Circle; beyond it the Arctic starts. In many places located exactly on its line, the winter uninterrupted night lasts only 24 h. In the Pole, however, it lasts for half a year."

According to the Americans, eight countries have territories north of the Arctic Circle: the United States (Alaska), Canada, Russia, Norway, Denmark (by virtue of Greenland[11]), Finland, Sweden, and Iceland. These eight countries are often referred to as the Arctic countries, and they are the member states of the Arctic Council.[12] A special subset of the eight Arctic countries are the five countries considered the Arctic coastal states: the United States, Canada, Russia, Norway, and Denmark (by virtue of Greenland).[13] Americans also state that there exist several other definitions and ways of denoting the Arctic which are based on factors such as average temperature, the northern tree line, the extent of permafrost on land, the extent of sea ice on the ocean, or jurisdictional or administrative boundaries.[14]

[10]More on the subject in Sect. 3.3, Chaps. 4 and 5. Also Kublik (2013).

[11]On November 25, 2008, voters in Greenland approved a referendum for greater autonomy that some observers view as a step towards eventual independence from Denmark.

[12]For more on the Arctic Council, see http://www.arctic-council.org.

[13]See O'Rourke (2012).

[14]For more on the discussion on the issue, see Susan Joy Hassol (2004), Yong and Niels Einarsson (2004), Hugo Ahlenius (2012).

European researchers are of the opinion that apart from the astronomical borderline, there exist four more ways of defining the scope of the Arctic:

- The climatological boarder running along the +10 °C isotherm on land and +5 °C on sea in the warmest month of the year (July),[15]
- The so-called Nordenskiöld Line,[16] also termed a botanical border, delineated on land by the northern tree line (coinciding to a large degree with the climatological border); and in water environment demarcated by water temperature and the reach of glaciation,
- The geopolitical border which, according to Osica, "concerns a region extending north of the 60th parallel. As well as this, there is the notion of the Arctic Circle, which narrows down the sub-region's political range to the Polar Circle. From this perspective, the major players are those states of the Arctic G5 which neighbor with the Arctic Ocean, i.e. Russia, the USA, Canada, Denmark/Greenland and Norway (Osica 2010, p. 12).

Osica (2010, p. 12), presenting the American perception of the issues, adds the following: "When viewed from the perspective of the term 'High North,' the circle of concerned parties is increased by the Polar Circle states of the Arctic Council, whose territories are adjacent to the Arctic circle or are located below it, namely Iceland, Finland and Sweden".

The central part of the Arctic is constituted by the Arctic Sea[17] (or the Arctic Ocean, also called the Northern Icy Ocean or the Northern Ocean). The Arctic Sea is ca. 14.75 million km^2 large; 5.9 million km^2 is covered by ice in summer and in winter, and the ice cap grows to 11.7 million km^2.[18] It is a continuation of the Atlantic Ocean towards the North Pole. That kind of continuation exists not only in the form of joining the waters but also in "…the form of sea bed structures such as continental shelf, ocean continental slope, and mid-ocean ridge… This region can be divided into three oceanic basins: the Basin of Norway and Greenland (BNG), the Basin of Europe and Asia (BEA), and the Basin of America and Asia (BAA). BNG is an example of typical oceanic structure with the rift zone in the middle and it is closed on both sides by a continental slope… The depth change of the ocean on the continental slope measures ca. 1.5 km. The continental margin, which includes the continental shelf, continental slope, and continental rise, in BEA has a typical characteristic of an elevation in the form of several islands: Svalbard Archipelago (SA), Franz Joseph Land (FJL), and New Siberian Islands (NSI)" (Moskalik). The narrow and shallow Bering Strait links the Chukchi Sea with the Bering Sea and surrounds the Russian Big Diomede Island and the American Little Diomede, and

[15]In this case, the Arctic encompasses ca. 26.5 million km^2.

[16]Nordenskiöld, Adolf Erik (1832–1901), baron, Swedish researcher and explorer who, among others, led the Arctic expeditions on Spitsbergen in the years 1864–1873. See Uppslagsbook and Södertälje (1985, p. 910).

[17]For more on the subject see Lomczewski et al. (1979).

[18]See Killaby (2005–2006).

separates the Arctic Sea from the Pacific, "… while from the open Atlantic a symbolic line runs from the eastern coast of Greenland to Iceland (where the so-called Denmark Strait is situated) and then along the Iceland Rise to the Faroe Islands, and along the Wyville Thomson Ridge to the coasts of the Scandinavian Peninsula" (Kubiak 2012, p. 24). On the western side of Greenland, the border runs from Cape Chidley on the northern tip of Labrador to Cape Farewell (Greenlandic: Uummannarsuaq) on the southernmost extent of Greenland (Maj-Szatkowska 2004, p. 24).

Moskalik (2012) lists 12 shelf seas in the region: Baffin Sea, Barents Sea, Beaufort Sea, White Sea, Chukchi Sea, Greenland Sea, Kara Sea, Lincoln Sea, Laptev Sea, Norwegian Sea, Pechora Sea, and East Siberian Sea (extensively discussed then by Kubiak 2012, pp. 25–33), 31 straits, 1 channel (Parry Channel), and 42 bays.

The above-listed areas, which consist of seas, islands (among others, Greenland, Baffin Island, Novaya Zemlya, Victoria Island, Ellesmere Island, or Svalbard Archipelago)—together with the tundra vegetation covered stripe of Eurasia, the northern and eastern part of Labrador, the land part of northern Canada, and Alaska, straits and bays—occupy some 27 million km^2. The land part, encompassing the tips of the East European Plain, the West European Plain, the West Siberian Lowland, Kolyma Lowland, Yano-Indigirskaya Lowland, as well as the plains at the Arctic Ocean in North America, occupies some 10 million km^2. Mt Gunnbjörn (3700 m above sea level) in Greenland is considered the highest peak of the Arctic.

Compared to the rest of the globe, the Arctic is characterized by lower average air temperatures of a very wide range—annual average temperature in Reykjavik is listed at 4 °C, in the middle of the Arctic Ocean −18 °C, and in the upper parts of Greenland continental glacier—at −29.1 °C (ACIA 2005, p. 10) and lower water temperatures, as well as the presence of ice and snow sheet—seasonal at lower latitudes, and permanent at higher ones (Węsławski et al. 2007, p. 312).

The Arctic's ice sheet, called cryosphere,[19] includes glaciers, sea ice, and permafrost. The distribution of ice in the Arctic is very uneven: its land part makes up 3.1 million km^3 of ice, and other ice-covered areas are located in various climatically diversified zones. Greenland Continental Glacier is the largest today, being four times bigger than the glaciers of Siberia, Scandinavia, Alaska, and Canada put together.

Sea ice[20] is a porous matrix that harbors within its interior a network of brine pores. Sea ice is a complex composite made up of pure ice and including pockets of air and highly saline brine. Liquid brine and air are trapped within a matrix of pure ice crystals. The process of sea ice forming is very complex and occurs in a few stages. "As the ocean water begins to freeze, small needle-like ice crystals called

[19]More on the subject in ICARP II—SCIENCE PLAN 7, TERRESTRIAL CRYOSPHERIC & HYDROLOGIC PROCESSES AND SYSTEMS, Second International Conference on Arctic Research Planning (ICARP II), Copenhagen, Denmark, 10–12 November 2005, www.icarp.dk.

[20]The process of its formation differs from the freezing of freshwater. The minerals existing in sea water lower the freezing temperature to ca. −1.8 °C. The higher the salinity is, the lower the freezing temperature.

frazil form. In windless weather, the ice grows downwards; in strong winds and waves, the ice forms so-called *pancake ice*. If it is snowing, the snow makes the newly-formed ice submerge and thus creates its structure more granular. In the final stage of the process, solid first-year ice is created, and then multiyear ice characterized by lesser salinity as well as density. The sea ice dynamics depends on the extent and plasticity of ice cover" (portalwiedzy). On the surface, there appear hummocks, melt ponds, ice overhangs, and leads (long, linear areas of open water that range from a few meters to over a kilometer in width, and tens of kilometers long; they develop as ice diverges or pulls apart).

Permafrost,[21] or permanently frozen ground, is ground (soil, sediment, or rock) that remains at or below 0 °C for at least two years, and it is characterized by firm hardness (Goszczko 2012, p. 40). These features make the High North a special region, extremely inhospitable to men, in which building permanent settlements has always been connected with severe risk and the necessity of constant fight for survival.

The consequence of the harsh or even extremely cold climate is a rather poor flora of the Arctic, dominated by "dwarf shrubs, hardy perennials (mostly grasses and sedges), moss, lichen, and moss-tundra, dwarf-shrub-tundra, lichen-tundra, and forest-tundra. The animal world is represented mainly by the abundant though little diversified marine fauna, mostly fish: species of cod, herring, and sculpin" (Repelewska-Pękalowa and Pękala 2007, p. 280). Although there exist here only some 150 fish species, because of their numbers alone, the fish play important role in the ecosystem functioning,[22] as well as the economies of the Arctic states.[23] "The largest arctic fish is the Greenland shark; it can exceed 700 kg in weight and 6 m in length. This shark is a slow-moving demersal fish that catches almost all kinds of prey from carrion to birds, sea seals, and other fish. The second largest Arctic fish is the Greenland halibut, which is a huge flatfish up to 4 m in length" (Weslawski 2012a, p. 100).

The animal world also includes sea mammals: whales (including endemic Greenland whale, narwhal, and beluga—*Delphinapterus leucas*), walruses, and seals. Because of the rich feeding grounds of the margin of the ice pack, almost all of the whale species of the northern hemisphere migrate to the Arctic in summer. "Blue whales, fin whales, sei and humpbacks feed in Atlantic Ocean of the Greenland and Barents seas, while gray whales and Greenland whales in the Pacific sector of the Chukchi and Beaufort seas… Narwhales are fish eaters connected to the ice pack while belugas prefer coastal waters and river mouths" (Weslawski 2012b, p. 104). Walruses came close to extinction in the European Arctic in the

[21]More on the subject in Große et al. (2006). *IASC Bulletin* 08/09 (2010).

[22]The most important single fish species is the polar cod (20 cm), and it is the only one that occurs in large quantities beneath the ice pack. It is the primary prey for nearly all seabirds, seals, belugas and narwhal whales. Polar cod has physiological adaptation to life in low temperatures.

[23]There is commercial fishing of halibut, redfish, cods, mackerels. Some of those species arrived in the Arctic only due to the warming of the area.

mid-twentieth century. Today, stable populations estimated at a few thousand individuals inhabit the Arctic. The most abundant seal species are the Greenland seals which keep at the open sea and the ice pack. In addition, also ringed seals and bearded seals are found there.

The symbol of this area is the polar bear which actually lives on ice pack and floating ice. Of all the mammal species, today, the polar bear is most threatened by the disappearance of the ice pack. Other mammal species include reindeer (an Arctic and Subarctic-dwelling deer), caribou, Arctic fox, and musk-ox. Seabird species list seagull, auk, skua, snowy owl, ptarmigan, sea duck, and others. It is worth-mentioning that in the Barents Sea, for example, the fish stocks are equally exploited by the fisheries, seabirds, and marine mammals. Jan Marian Węsławski rightly observers that "sea mammals are important regulators of energy turnover through a phenomenon known as top down control. Polar waters support very efficient food (trophic) webs that extend from microplankton through macroplankton to sea mammals. Whales feed on the krill that feeds on diatoms so any changes in the abundance of carnivores are transferred quickly to the lower trophic levels" (Węsławski 2012b, p. 104).

All of that prompts observers to seek various analogies and make comparisons (Anioł 2010, p. 91). Their common denominator illustrates the increasing importance of the region on the basis of the processes occurring there and their accompanying events.

One could say that the High North, and the Arctic in particular, has been very much present in the international politics, starting in mid-twentieth century. Although initially perceived as an area of Cold War competition, after the changes in the international situation, it became a subject of scientific cooperation and efforts directed at environment protection. Currently, the international importance of the region undergoes a significant transformation. "The consequences of the climatic changes occurring around the North Pole and the accompanying it increased activity of the states possessing territories beyond the Northern polar circle have contributed to the significant growth of interest in this area by the international community. The attention has been focused both on the problem of possible negative consequences of the new situation, and the visions of substantial benefits which may be drawn from the so-far inaccessible Arctic" (Reflections 2010, p. 692).

Such statements are hardly surprising if one realizes that the expected access to the rich raw material resources and the monitoring of Arctic sea routes have resulted in both a reason for competitive efforts, and an impulse for the search of new forms and mechanisms of international cooperation in the High North. There exist many reasons calling for the problems of international relations in this region to become a subject matter of joint analyses and scientific cooperation. This, in turn, requires close cooperation of scientists, conducting active research in the Arctic in the fields of natural sciences, as well as specialists in social sciences.

2.2 The High North: The Region of Discoveries and Scientific Research

High North has always evoked much interest in humans. The first news about the lands in the North was brought through the travels of Pytheas of Massalia (today Marseille), who around 330 BCE probably reached Iceland (the island of Thule). The centuries 9 and 10 mark the period of settling the new lands by the peoples of the North: in the year 877, Gunnbjørn discovered Greenland; in 880 his compatriots reached the White Sea, and in the years 1000–1005 the Baffin Bay and Labrador. "In the 12th and 13th centuries, the Pomors or Pomory (seal hunters and fishermen from Northern Russia) sailed to the Novaya Zemlya—the Kara Sea" (portalwiedzy). The driving forces behind those discoveries were: the exploration of new lands, hunting and whaling expeditions, and prospecting for raw materials. Nearly a completely separate chapter has been written by the history of development of seafaring among the Northern peoples. Only towards the end of the 16th century, people began searching for a northern sea route to southern and eastern Asia (India and China). The attempts at circumventing the American continent from the north resulted in discovering consecutive areas of the Arctic. Among others, in the years 1576–1578, M. Frobisher reached Baffin Island; 1585–1587—J. Davis sailed to the strait between Greenland and Baffin Island (Davis Strait) and Cumberland Sound; 1607–1611—H. Hudson made it to the Novaya Zemlya and to the river, strait and bay named after him; 1612–1616—W. Baffin sailed around the western coast of Greenland, explored Hudson Strait and Lancaster Sound, reached the sea and land named after him, as well as Devon Island and Ellesmere Island. The exploration did not concentrate on the so-called Northwest Passage as expeditions were undertaken also along the northern coastal line of Eurasia—Northern Sea Route. In 1553, H. Willoughby and R. Chancellor reached the White Sea, and in 1554, S. Borrough discovered the islands of Novaya Zemlya and Vaygach. W. Barents[24] managed to reach Svalbard and Kola Peninsula in the years 1596–1597.

The 17th and 18th centuries were dominated by discoveries made by the Russians: 1648—Semyon Ivanovich Dezhnyov sailed around north-eastern Siberia and discovered a passage between Asia and America (later called Bering Strait); 1710–1712—Merkury Vagin and Yakov Permyakov discovered Lyakhovsky Islands in the East Siberian Sea; 1728–1730—the expedition of Vitus Jonassen Bering and Aleksei Ilyich Chirikov rediscovered Bering Strait; 1732—Ivan Fyodorov and Mikhail Spiridonovich Gvozdev reached Alaska; 1742—Semyon Ivanovich Chelyuskin made it to Taimyr Peninsula and discovered Cape Chelyuskin; 1765—Vasili Yakovlevich Chichagov reached 80°26′N north-west of Spitsbergen.

[24]Willem Barents (actually Barentzoon), ca. 1550–1597, a Dutch navigator, cartographer and explorer; while searching for the Northeast Passage took part in three expeditions. In 1596, he discovered Spitsbergen and the Bear Island; see *Upplagsbook*, Södertälje 1985, p. 97.

The years 1733–1742 marked the "Big North Expeditions" led by V.J. Bering, which discovered among others Aleutian Islands and Alexander Archipelago, and in which also participated the Russian explorers (to mention only Khariton Prokofievich Laptev, Dmitry Yakovlevich Laptev, Stepan Gavrilovich Malygin, Vasili Vasilyevich Pronchishchev, Stepan Petrovich Krasheninnikov, and Semyon Ivanovich Chelyuskin).

In North America, Samuel Hearne reached Coronation Gulf (1771), and Alexander Mackenzie the Beaufort Sea and the river named after him (1789–1793). In 1837–1839, Peter Warren Dease and Thomas Simpson made it to Victoria Island.

The 19th century marks a new period in the exploration of the High North in which the North Pole was reached and several attempts at navigating the Northeast Passage and Northwest Passage were made. Freiherr Nils Adolf Erik Nordenskiöld, on the steamship "Vega," was the first one to successfully navigate the former (1878–1879).[25] Even though the Northwest Passage was actually discovered in the years 1850–1853, Roald Engelbregt Gravning Amundsen,[26] on the fishing vessel "Gjøa," made the passage successfully only many years later (1903–1906).[27]

Polar explorers who particularly wanted to reach the North Pole include:

- William Edward Parry[28]—in 1827 reached 82°45′N;
- James Clark Ross[29]—in 1831 located the position of the North Magnetic Pole on the Boothia Peninsula;
- George Strong Nares—in 1875–1876 reached 83°20′N and proved that Greenland was an island;
- Fridtjöf Nansen[30]—1893–1896 Nansen took his ship "Fram" to the New Siberian Islands and waited for the drift to carry the ship across the Arctic Ocean. Later, he reached 86°N on foot;

[25]Earlier, those attempts were made by Russian Baron Ferdinand Friedrich Georg Ludwig von Wrangel and Pyotr Fyodorovich Anjou (1820), as well as George W. De Long, an American explorer, in 1879.

[26]Roald Engelbregt Gravning Amundsen (1872–1928) was a Norwegian explorer of polar regions. He was the first expedition leader to (undisputedly) reach the North Pole (December 14, 1911). He disappeared in the Arctic in June 1928 while taking part in a rescue mission. See *Upplagsbook*, Södertälje (1985, p. 38).

[27]While attempting to navigate the passage, several new discoveries were made: Sir John Ross reached Smith Sound and Lancaster Sound (1818–1819); W. E. Parry discovered Barrow Strait, Melville Island (Northwest Territories and Nunavut), and Melville and Banks islands (1819–1820); J. Franklin charted the north coast of America from the eastern side (1819–1822), and in the years 1845–1847 disappeared on his last expedition, attempting to chart and navigate a section of the Northwest Passage in the Canadian Arctic.

[28]Parry, Sir William Edward (1790–1855), officer of the British Navy, attempted four expeditions searching for the Northwest Passage in the years 1819–1827. See *Upplagsbook*, Södertälje (1985, p. 968).

[29]Ross, Sir James Clark (1800–1862), British polar researcher.

[30]Nansen Fridtjöf (1861–1930), Norwegian polar explorer, naturalist, oceanographer, social and political activist, representative of Norway in the League of Nations. He was the first one to

- Otto Sverdrup—in 1898–1902 discovered Axel Heiberg Island, a member of the Sverdrup Islands.

In fact, the North Pole was truly reached by Robert Edwin Peary and Matthew Henson who rode in a dog sled and arrived there on April 6, 1909.

Also the 20th century marked many expeditions and discoveries:

- Boris Andreyevich Vilkitsky[31] was the second one to have sailed through the Northeast Passage as a commander of an icebreaker and discovered Severnaya Zemlya (1913–1918);
- Vilhjalmur Stefansson[32]—journeyed on foot (on drift ice) and traversed the Beaufort Sea—from Alaska to Victoria Island (1913–1918);
- Jan Nagórski[33]—the first person (aviator) to fly an airplane in the Arctic reaching 76°30′N (1914);
- Richard Evelyn Byrd and Floyd Bennett—the first to reach the North Pole by air in 1926; Roald Amundsen, Lincoln Ellsworth, and Umberto Nobile made it there by the dirigible "Norge";
- George Hubert Wilkins and Carl Ben Eielson left Point Barrow, Alaska, on April 15, and flew across the Arctic Ocean to Spitsbergen, crossing the Arctic Sea (1928);
- the Soviet icebreaker "Sibiryakov" in 1932 made the first successful crossing of the Northern Sea Route (Northeast Passage) in a single navigation season without wintering;
- "St. Roch," Canadian schooner, was the first ship to complete the Northwest Passage in the east-west direction (1944);
- "USS Nautilus" (SSN-571) was the world's first operational nuclear-powered submarine. She was the first vessel to complete a submerged transit to the North Pole on 3 August 1958;
- Sir Walter William "Wally" Herbert made history in 1968–69, when he led the British Trans-Arctic Expedition (BTAE) with dog-sleds from Point Barrow, Alaska, to Spitsbergen;

(Footnote 30 continued)

traverse Greenland from east to west in 1888; in 1893–1895, he commanded an expedition to the North Pole; winner of the Nobel Peace Prize.

[31]Vilkitsky Boris A. (1885–1961), Russian hydrographer and surveyor; he was the first one to sail the Northeast Passage from east to west; since 1920 remained in exile.

[32]Stefánsson Vilhjálmur (1879–1962), Canadian polar explorer known for his ethnographic expeditions.

[33]Jan Nagórski, (1888–1976), Polish pilot of the Imperial Russian Navy. In 1914, taking part in a Russian polar expedition, on a "Farman" class hydroplane, he was the first in the world to fly a plane in the polar region. It is worth-adding that in the 19th century several thousand Poles were sent to the High North as exiles after consecutive Polish risings against Russia. Many of them became researchers and the people like Dybowski, Czerski, and Czekanowski became known in world science.

- "NS Arktika" is a nuclear-powered icebreaker of the Soviet (now Russian) Arktika class; she was the first surface ship to reach the North Pole in 1977;[34]
- Naomi Uemura (www.everesthistory) was the first person ever to reach the North Pole solo in 1978. The first Polish man to repeat the feat was Marek Kamiński in 1995 (the same year he reached also the South Pole).

During the First International Polar Year (1882–1883), scientists from eight countries made a cooperative endeavor to solve the fundamental questions in terrestrial magnetism and international meteorological data gathering. In the Second International Polar Year (1932–1933), already 13 countries participated, including Poland. The beginnings of the Polish presence in the Arctic date back to the mid-eighteenth century and are connected with research activities of the Polish political prisoners sent forcibly to Siberia. The local geographical names honor their achievements. In the first half of the 19th century, A. Czekanowski and J. Czerski participated in Siberian polar expeditions. L. Hryniewiecki and J. Morozowicz explored the Novaya Zemlya, K. Bohdanowicz Chukchi Peninsula and Alaska, and K. Wołłosowicz the New Siberian Islands. In the years 1899–1901, as participants in the Russian scientific expeditions, the following Poles took part in the exploration of Spitsbergen: zoologist Aleksander Birula–Białynicki and astrophysicist J. Sikora, the latter being the first Pole, known to us, who spent winter on Spitsbergen and made photogrammetric pictures of its southern parts. In 1910, Henryk Arctowski, famous for this wintering in the Antarctic, spent some time on Spitsbergen as a head of the science division of the New York Public Library. "The first Polish polar expedition went to Spitsbergen in 1932, and the consecutive ones in 1934, 1936, and 1938. The first Polish expedition to Greenland was organized in 1937 by the geographer and glaciologist Aleksander Kosiba, and the other members included S. Bernadzikiewicz, A. Gaweł, A. Jahn, and S. Siedlecki.[35] In July 1957–December 1958, in connection with the International Geophysical Year (IGY), another Polish expedition to Spitsbergen was organized, which until 1960 conducted research in Polar Bear Bay (Isbjørnhamna) in Hornsund Fjord, West Spitsbergen" (portalwiedzy). Owing to such active participation of Polish explorers, maps of Spitsbergen were assigned Polish geographical names: mountains named after Copernicus—KOPERNIKUSFJELLET, Staszic—STASZICFJELLET, Pilsudski—PILSUDSKIFJELLA and Curie-Sklodowska—CURIE—SKŁODOWSKAFJELLET as well as a glacier called Glacier of Poles (Polakkbreen) or Poles' Glacier, and many others.

[34]In 1992, "The Oden," a large Swedish icebreaker, was the first non-nuclear surface vessel to reach the North Pole.

[35]The founder of the Hornsund Station, geologist Professor Stanisław Siedlecki (1912–2002) devoted his whole life to the Arctic research. His scientific career began in 1932 with an expedition to Bear Island.

In the years 1957–1958, in connection with the International Geophysical Year, a Polish expedition on Spitsbergen was organized and research conducted until 1960 at Isbjørnhamna (Polar Bear Bay), in Hornsund Fjord (portalwiedzy). The Horsund Polish Polar Station, established in 1957 and called "The Polish House next to the North Pole," became a base for the Polish research in the Arctic carried out within the scope of the International Geophysical Year 1957–1959. Until the mid-1970s, the Hornsund Polish Polar Station had been used by research teams in summer seasons only. Reconstructed in the summer of 1978, the Hornsund Polish Polar Station has functioned as a geophysical observatory.

The Hornsund Polar Station in winter. (Photo by P. Głowacki)

It is located at a distance of about 200 km from the nearest human settlements. Throughout the year, the Hornsund station can be reached only by helicopter, during the winter by snow scooters, and in the summer by the sea.

The Hornsund Polish Polar Station—distance indicator. (Photo by R.M. Czarny)

In this region, the polar night lasts from October 31 to February 11. The polar day begins April 22 and ends August 21. It is then that the world's only sundial runs showing time 24 h a day. The Hornsund Polish Polar Station's location in the central part of Svalbard archipelago (where the Eurasian and American Arctic meets) provides for exceptionally favorable conditions for the study of the structure of lithosphere and physical processes occurring in the atmosphere and extraterrestrial space.

Hornsund Fjord in Svalbard is kind of a laboratory for recognizing and understanding the processes occurring on a great scale in the High North. A significant and modern center of this "laboratory" is Stanisław Siedlecki Polish Polar Station, created in 1957 at Polar Bear Bay (Isbjørnhamna). The station has been managed by the Institute of Geophysics, Department of Polar and Marine Research of the Polish Academy of Sciences since 1958. Many of the station's research programs on the Arctic are conducted by international teams.[36] The Institute of Oceanology of the

[36]Research at the Hornsund Polish Polar Station in Spitsbergen has been done with the participation of the following foreign partners: Arctic Center, University of Lapland in Rovaniemi, Finland—geophysical investigations of glaciers and snow structure in Spitsbergen at the Hornsund area; Departamento de Matematica Aplicada ETSI de Telecomunication, Universidad Politecnica de Madrid Ciudad Universitaria, (Spain)—cooperation in radar surveys and their application in modelling of structure of the processes occurring within the glaciers of Svalbard; Department of Geosciences and Geography, University of Helsinki—joint research on sedimentation in young glacial sea basins such as Brepollen in Hornsund; Institute of Geography of the Russian Academy of Sciences—studies of the glaciers and snow covers dynamics in Arctic and in Russian mountain region; Geodetic and Geophysical Research Institute of the Hungarian Academy of Science,

Polish Academy of Sciences (IO PAN) in Sopot since 1987 has conducted regular research of the High North, and the European Arctic in particular, from the Research Vessel s/y (sailing yacht) "Oceania." In addition, various Polish universities and research institutes send yearly expeditions to the region.

In recent years, Polish scientists have been working also in Polish-Norwegian scientific programs researching the causes and effects of climate changes in polar regions. One of such programs is *Alkekonge*, whose name comes from the Norwegian term for the little auk, the smallest of the European auks. It is the most numerous species among the marine birds in the North Atlantic. Most of the population breeds in colonies in the southwestern and northwestern parts of Spitsbergen. Research on Little Auks feeding and breeding ecology is mostly conducted by ornithologists from the Department of Vertebrate Ecology and Zoology, University of Gdańsk, who make comparisons of the planktivorous diet of the birds and chick feeding rate in the Little Auk between the areas of Spitsbergen of different oceanographic conditions: the southern one (in the vicinity of the Polish Polar Station in Hornsund), the central one (the area near Longyearbyen, capital of the island), and in the north (the picturesque Magdalenefjorden, the former whaling station). They compare and observe the behavioral response of the Little Auk (*Alle alle*) to climate change in the European Arctic.

(Footnote 36 continued)

Sopron, Hungary—long-term variations in the Schumann resonance parameters in Polish Polar Station at Spitsbergen and Central Europe (in the years 2008–2011, on the basis of the agreement on scientific co-operation between the Polish Academy of Sciences—PAS) and the Hungarian Academy of Sciences—HAS); the Czech Academy of Sciences, Institute of Rock Structure and Mechanics of the ASCR—joint research on isostatics and shifting of orogeny rock mass resulting from the changes in the polar ice caps in the region of southern Spitsbergen; Laboratoire Physique des Radiations, Faculty of Science, Technology and Communication University of Luxembourg, Campus Limpertsberg—joint isotopic analyses of the Hornsund region waters; Laboratrorie de Planetologie du Grenoble, Francja—joint research on auroral phenomena; Norwegian Meteorological Institute, Oslo (Norway) –recording meteorological observations from the Hornsund Stattion and transmitting SYNOP messages to the center in Oslo; Norwegian Institute for Air Research NILU, Keller (Norway)—carrying out the tasks of the program AMAP; National Antarctic Center Kuala Lumpur (Malaysia)—joint biological research; The University Center in Svalbard (UNIS) Longyearbyen (Norway)—cooperation in lake-sediment studies to reconstruct environmental changes occurring in the region of the polar station; University of Oslo, Faculty of Geoscience, Oslo (Norway)—application of geophysical methods in examining glaciers.

The following Polish scientific entities participated in the research programs in 2011: the Maritime University of Gdynia—1 team (research on climatology); Space Research Centre—1 team (ionosphere research); the Institute of Geophysics of the Polish Academy of Science in Warsaw (IGF PAN)—3 teams (glaciology, geophysical processes and phenomena and atmospheric physics); The Institute of Oceanology of the Polish Academy of Sciences (IO PAN)—2 teams (oceanography and marine ecology); the Institute of Nature Conservation PAS in Krakow–1 team (biology); the University of Gdańsk—1 team (ornithology); Jagiellonian University in Krakow—1 team (geomorphology); the Maria Curie Skłodowska University UMCS in Lublin—1 team (geomorphology); the University of Silesia in Katowice—3 teams (glaciology, climatology and hydrology); the University of Wrocław—3 teams (climatology, botany and geomorphology); the University of Warmia and Mazury in Olsztyn—1 team (biology).

Ecologists from the Institute of Oceanology of the Polish Academy of Sciences research changes in zooplankton composition, structure and count, while physical oceanographers examine causes of the changes in the temperature of the Atlantic water. The data gathered by the team led by Prof. J. Piskozub from the Air-Sea Interaction Laboratory regarding exchange of mass and energy, momentum and radiation at the ocean-atmosphere contact zone, and acousticians from the team led by Prof. Z. Klusek in gas bubbles in the seas and methods of their detection, together with the achievements of scientists from the Institute of Geological Sciences of the Polish Academy of Sciences in isotopic research should give some answers to the issue of seabed methane emission in the Arctic.[37]

The second significant and comprehensive research program is called AWAKE —Arctic Climate and Environment of the Nordic Seas and the Svalbard-Greenland Area—which should help understand the interactions between the main components of the climate system in the Svalbard area and improve our understanding of ocean, atmosphere and ice to identify mechanisms of interannual climate variability and long-term trends. Researchers from the Nicolaus Copernicus University in Toruń have studied the Arctic climate for years and scientists from the University of Silesia the glaciers of Svalbard (the archipelago of which a part is Spitsbergen). The Hans Glacier in Hornsund, Svalbard Archipelago, is a true laboratory in glaciological investigations. The program AWAKE, among others, is to verify the hypotheses regarding the indirect (through the changes in air temperature, and streams of heat emitted to the atmosphere) and direct influence (as meltwater forms on the glacier surface, it gradually finds its way down to the glacier sole along channels in the ice) of the Atlantic water on the melting and calving of Svalbard glaciers. In recent years, they have produced more and more icebergs which results in more mass disappearing into the sea more rapidly. The reason why they disappear more quickly is that the water beneath the ice lubricates the subsurface causing the glacier to glide faster, which increases the calving of icebergs.

Even that select piece of information clearly shows that Polish polar research is realized through active participation in numerous scientific organizations and in international research programs within broad international cooperation. "The procedural and legal basis for the Polish presence and activity in the Arctic is provided by the Svalbard Treaty of February 9, 1920, whose signatory is also Poland, and the Polish presence in the Arctic Council. This diplomatic position of Poland is in addition strengthened by the participation in numerous Arctic agreements and international organizations of economic, scientific, cultural nature, and environment protection" (Reflections, p. 616).

[37]In 2009, the European Commission launched the project called "Pergamon" whose aim is to coordinate the European research to quantify the methane input from marine and terrestrial sources into the atmosphere in the Arctic region and ultimately to evaluate the impact of Arctic methane seepage on the global climate. Poland in the Pergamon is represented by Prof. M. Lewandowski (Director of the Institute of Geological Sciences PAN) and Prof. J. Piskozub (Head of the Air-Sea Interaction Laboratory of the Institute of Oceanology PAN).

Regular scientific research in the Arctic has been conducted since the end of the 19th century. Today, among others due to territorial issues and the division of the High North in terms of countries, we are dealing with an enormous number of world projects, as well as regional and national ones, of much diversified scope and character. They start with energy resources (raw material deposits and reserves) and go through environment protection, research on the flora and fauna, all the way to those related to indigenous peoples in the North. Initiatives at the grass-root level are a new and much interesting a phenomenon. In other words, it is activism or initiatives of and by the native peoples. Such possibilities, in my opinion, are created by the relative autonomy of the local peoples as well as their strong sense of ethnic identity, together with a sense of distinctiveness in terms of the culture dominating in the country in which they reside. Frequently, they go beyond the area in which they were born, and their ideas become common for the communities from other regions of the High North.[38] One could possibly risk a statement that a certain "flywheel" or a driving force behind all those undertakings became the International Polar Year (IPY), proclaimed for the third time then and falling onto the years 2008–2009.[39] This international research undertaking was organized on a scale unheard of until then and realized in the new and much favorable geopolitical conditions for polar research. It was accompanied by substantial investment in research and logistics.[40]

2.3 The Growing International Interest in the Region

WWII brought unprecedented changes in the High North which became a real theater of action on sea and in the air because of the struggle between the Allies and Germans. Meteorological observatories, airfields, airbases, food storages and military bases were then built. There was a clear delineation of control: Americans and Danes were "responsible" for Greenland, Russians for Franz Josef Land, and the British watched over Svalbard Archipelago and Jan Mayen Island. Furthermore, the Arctic and particularly the Northern Sea Route (former Northeast Passage) became extremely important for the Allied supplies to the Soviet Union during the war. "After the collapse of the agreement between the Allies, the United States and the Soviet Union faced another type of war which consisted in »controlled stillness«. In the regions isolated at the time of war, situated alongside the arc stretching from Greenland to Bering Strait, defensive installations were built like the Distance Early Warning (DEW) Line the cost of which was over 600 million dollars" (Nazarri 1998, p. 162). The Arctic became heavily militarized which was connected, among others, with technical and technological progress in the military forces of the

[38]More on the subject in Indigenous Arctic Peoples, Chap. 4.

[39]More on the subject: www.ipy.org. See also Kaiser (2010).

[40]More on the subject at: www.ipy.org.

superpowers of that time,[41] and the polar stations, both American and Soviet, were manned by extremely strong military and civilian personnel. According to J. Symonides: "The Arctic played a double role at the time of »Cold War«, not only as an extremely important area from which to attack the other side with nuclear weapons systems deployed there, but also a vital element of a »deterrent«" (Symonides 2011, p. 24).

A temporary reduction of the Russian presence in the Arctic was a consequence of the breakdown of the bipolar order of power, the collapse of the Soviet Union and, what followed, the elimination of several Russian bases in the region. "The Russian Navy's submarine fleet was significantly reduced. A substantial part of it has been withdrawn and scrapped. Regular patrols and flights along the Canadian and American coastlines have been stopped. In the atmosphere of détente and cooperation in the 1990s, also Canada, Norway, and Denmark significantly lowered their military potential and engagement. Naval forces have been reduced and maneuvers and military exercises stopped" (Symonides 2011, pp. 24–25).

Although the change in the strategic balance after 1990 brought a period of cooperation of countries in the region, it has not, however, resulted in its full demilitarization or solved political and legal disputes.

Over two decades after the end of the "Cold War," there still exists the need for deepening our knowledge of the Arctic—the vast, unpopulated, hardly accessible and still not very well understood domain. We already know that "Since all of the processes that influence the Arctic also directly impact us—e.g., global increases in sea levels stem from the mass melting of Arctic glacier, and European temperatures depend on heat exchange between Atlantic and Arctic Ocean interrelations—we must organize international efforts to continue observations and research made and all of the knowledge acquired must be available to the public" (Węsławski, p. 5). Countries like the Russian Federation, the USA, Canada, Denmark (Greenland), Norway, Sweden, Finland, and Iceland, which all have territories in the Arctic, do it for obvious reasons—they need to be knowledgeable about their own lands. Still, polar research stations and expeditions are organized by many non-Arctic countries: Germany, the Netherlands, Poland, Great Britain, Italy, Spain and a number of other countries from outside Europe, notably China, Japan, India, and the Republic of Korea. For all these countries, there are three most important reasons for their interest in the Arctic:

- Its role in shaping the climate of the Northern Hemisphere;
- Exploitation of hydrocarbons (oil, gas) and mineral deposits, and living stock of crustaceans, fishes, and mammals;
- New shipping routes.

[41]It mainly concerned long-range bombers capable of carrying nuclear weapons, the development of offensive ballistic missiles, and nuclear-powered submarines sailing under the ice of the Arctic Ocean. See Young (1985) and following.

The activities regarding the first issue are researched by the network of international cooperation, hence, for example, the existence of the international research station in Ny-Ålesund on Spitsbergen which has Japanese, Korean, Indian, and Chinese components. The second of the listed reasons engages many actors on the international scene, representing both national and private interests, including the "fast growing economies" of Asia. They all show an increased interest not only in the Arctic alone, but also, generally speaking, in the European High North. Undoubtedly, it is something much more than pure political rhetoric, the more so as the region has a considerable potential and possibilities of growth.

Countries like the People's Republic of China, Japan, and the Republic of Korea are particularly interested in new raw deposits and the possibilities of utilizing the Arctic shipping routes. These countries are some of the largest importers of crude oil (BP 2011),[42] and in the case of Japan and Korea, also of natural gas. In their energy strategies, a diversification of energy raw material sources supplied from an economically and politically stable region is much desired and the High North hydrocarbon resources appear to provide an opportunity to improve their energy security.[43] Since the economies of these countries are based mainly on export of goods, it is no surprise that the possibility of shortening the sea routes is of such paramount significance as it refers to the prospect of shortening the route to Europe (through Northern Sea Route and Northwest Passage) by some 40 %, and to the East Coast of the USA.

All of the above activates these nations, and particularly the Chinese who are interested in licenses for mineral exploration.[44] Although this large country has not disclosed any official strategy towards the High North yet, its interest in the opportunities and challenges connected with the region as well as its attempts to secure own interests there are indisputable. As stated by J. Grzela, "Research on this region has not only great significance in scientific understanding of the polar system, but also provides an opportunity to comprehend its impact on Chinese climate, agriculture, natural resources, and environment protection. The arguments supporting such a statement list, among others, the following:

1. The climatic system of the Arctic has a considerable influence on China's climate, and weather exerts decisive control over the changes of seasons to bring in droughts, floods, wind and frosts to major economic areas in China;
2. Ocean currents of the Arctic have a strong influence on the land climate of East Asia and world ocean fishing (1/4 of Chinese annual fishing yield comes from the Arctic Ocean and the Bering Sea);
3. Arctic research may provide some scientific data for battling droughts and land desertification in North China" (Grzela 2012, p. 4).

[42]See also Młynarski (2011b); and Godlewski (2012).

[43]In the case of crude oil, the majority of imports come currently from the Middle East and Africa.

[44]More on the subject in Kubiak (2009).

"Whoever has control over the Arctic route will control the new passage of world economics and international strategies," says Li Zhenfu of Dalian Maritime University, as cited by Jakobson (2010), and these words fully reflect the viewpoint of the media and scientists, publicly encouraging the government and other official authorities to undertake actions regarding utilizing the commercial and strategic opportunities presented by the melting ice of the Arctic.[45]

For the Chinese, the Arctic is a subject of scientific research conducted in the field of climate changes,[46] fish species, new sea routes, and energy security. Within the frame of an extensive program of scientific research, in 1989, they established the Polar Research Institute of China—PRIC. The first Chinese Arctic expedition took place in 1999, and China's first Arctic research station, Arctic Yellow River, was founded at Ny-Ålesund in Norway's western Svalbard archipelago in July 2004. In the field of researching the Arctic environment, the Chinese have cooperated with Norway since 2004, and since 2009 both countries have conducted a bilateral dialogue as regards climate change and environment protection.[47] The Republic of Iceland, however, seems to be of particular interest to the Chinese authorities, and in April 2012, China signed an agreement with Iceland as regards science, polar research, and geothermal energy.

Chinese Arctic researchers since 1997 belong to the International Arctic Science Committee—IASC. They have at their disposal the world's largest (non-nuclear) icebreaker, the Research Vessel "Xuelong" (Snow Dragon).[48] It was the first-ever Chinese vessel that navigated the North Pole in August 2012.

Although the official position in its rhetoric is much milder than the expectations or even demands voiced by the media, the academia, and military circles, it is virtually impossible not to assess that the described heightened activity leads to the growing importance of the People's Republic of China in the Arctic (Jakobson 2010). Nobody should be deceived by the appearances of the Chinese detachment

[45]More on the subject in Sakhuja, V. China: Breaking into the Arctic Ice. Retrieved October 10, 2012 from http://www.icwa.in/pdfs/ib%20%20dr.pdf.

[46]In 1995, a group of Chinese scientists and journalists travelled to the North Pole on foot and conducted research on the Arctic Ocean's ice cover, climate and environment.

[47]More on the subject in The statement made by the Norwegian Minister of Foreign Affairs, Jonas Gahr Støre, in China at China Institute for International Studies, Beijing, 30 Aug. 2010. Retrieved November 25, 2010 from http://www.regjeringen.no/eu/dep/ud/whats-newspeeches/-and-articles/speechesforeign/2010/arctic_vierijing/html?id=613162.

[48]Research Vessel "Xuelong" (Snow Dragon) was purchased from Ukraine in 1993. In October 2009 the State Council (the Chinese Cabinet) decided that "Xuelong" alone no longer met the demand of the country's expanding polar research. The government approved the building of a new high-tech polar expedition research icebreaker, which is to be launched in 2014; more on the subject in China's 1st icebreaker to be completed in 2013. Retrieved May 03, 2012 from http://usa.chinadaily.com.cn/china/2011-10/25/content_13976000.htm; Lasserre, F. China and the Arctic: Threat of Cooperation Potential for Canada? Retrieved June 05, 2011 from http://www.opencanada.org/wp-content/uploads/2011/05/China-and-the-Arctic-Frederic-Lasserre.pdf; and Viglundson, J., Doyle, A. First Chinese ship crosses Arctic Ocean amid record melt. Retrieved October 25, 2012 from http://uk.reuters.com/article/2012/08/17/us-china-environment-idUKBRE87G0P820120817.

and objectivity in treating the problems of the High North, particularly in the context of their search for bilateral agreements with the Arctic countries which can be spectacularly illustrated by the direction of Chinese politics towards Iceland. In September 2011, Icelandic Internet media started examining the interest of Chinese businesses in their country. The news website RÚV—Ríkisútvarpið, the Icelandic National Broadcasting Service (Haykowski 2011)—assessed that it was a result of the attempts of Beijing to build a strategic stronghold in the Arctic Region.[49] Alongside with the intended purchase by the Chinese investment fund of an "eco-golf course" and luxury resort on a 300 km^2 tract in Iceland's desolate north-east corner, already covered by the world media, there have been constant endeavors by the Chinese investors to enter Iceland. Among others, those include participation in constructing a new hub-port, gas and oil pipeline through which the extracted raw materials are to be transported from the new sources around Iceland and Greenland.[50] Attempts of the Chinese authorities at strengthening relations with Iceland are clearly noticeable and can be exemplified by the recently started cooperation between the main banks of the respective countries.

The very same purpose was served by the Chinese President Hu Jintao's state visit to Denmark in June 2012[51] which is considered to be an excellent example of Chinese attempts at gaining influence in the Arctic and Greenland. The two sides signed 11 cooperation documents.[52] "Beijing's efforts bring about results. In December 2012, Greenland's Parliament passed legislation to allow into the country foreign workers who earned salaries below the local legal minimum wage —the minimum wage there is one of the highest in the world" (Kublik 2013). If we take into consideration that should the U.K.-based London Mining Inc. (a firm backed by Chinese steelmakers and investing 2.3 billion USD into the exploitation of iron ore in Greenland) employ in its mines some three thousand Chinese low-wage workers, the above-mentioned legal solution clearly favors the Chinese.

Two other countries, namely **Japan** and **the Republic of Korea**, similarly to China, are much interested in gaining access to the energy resources of the High North. They carefully follow all the developments in the Arctic, and their policies towards the issues of this region are extremely well-measured if not outright cautious.[53] I am also convinced that their attempts to gain the observer status in the Arctic Council have a very significant influence on the form of their activities. They fully realize that their strong, innovative and technologically advanced economies

[49]Iceland is often described as an ideal transport hub for Arctic shipping considerations, being perfectly located between Northern Europe and the East Coast of North America. This country can be, for example, a good place for transshipment and reloading on the new northern shipping routes.

[50]More on the subject in Chap. 5.

[51]Two months earlier, during the visit of the Chinese Prime Minister, Denmark agreed to support the Chinese bid to gain the permanent observer status in the Arctic Council.

[52]Following the contracts awarded to Danish companies in China, worth as much as 3 billion USD, for example Carlsberg will build breweries in the "Center of the World," and the concern Maersk will develop one of the sea ports there.

[53]More on the subject in Kubiak (2009).

may prove to be a strong argument in potential maritime licenses or investment considerations in this region.

Japan is particularly interested in environmental programs and passage routes through the Arctic area, and development of resources in the Arctic Circle, as well as creating effective mechanisms to settle potential disputes. As for the last issue, the Japanese Government is of the opinion that the Arctic should be recognized as part of the common heritage of mankind, and the international community should protect this area, take care of its sustainable development and environment protection, use it for peaceful purposes, and as a whole have access to the potential benefits.[54] Japan's position is that the legal issues related to the Arctic Ocean should be addressed within the existing legal framework, whose central framework is UNCLOS. It is stressed that should the work on establishing new law begin, the occurring changes ought to be considered with a substantial participation of the interested states, and not only the littoral ones.

As one of the largest economies in the world, a large import market and a significant energy importer and one of the world's largest traders not only in its own region, but also with the USA, Europe, and the Middle East, Japan is interested in the potential possibilities of sea transport. Should the reduction of ice cap allow for a larger zone and longer period of navigating the Arctic Ocean, then the distance, for example from Yokohama to Hamburg, will be shorter by 62 % compared to the Suez Canal route. "We are interested in environmental programs and transportation or passage through the Arctic area, and development of resources in the Arctic Circle," said Yoichi Fujiwara (2010), a spokesman for the Japanese Embassy in Ottawa, and these words, in my opinion, fully reflect the attitudes not only of the government, but also the media, public opinion, and the academia.

Today, the basic instrument of the Japanese activity in the Arctic is the research conducted, among others, by the National Institute of Polar Research (NIPR), Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan Aerospace Exploration Agency (JAXA), and a number of universities. "The Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) has launched a new interdisciplinary Arctic science project to clarify and evaluate the global influence of the Arctic, named the Green Network of Excellence (GRENE)" (Grzela 2012, p. 8). Scientists of this country have use of their own station in the Svalbard Archipelago,[55] and researchers gathered at Japan Consortium for Arctic Environmental Research (JCAR) deal with addressing long-term Arctic environmental research planning, and human resource development in the Arctic.[56] "Since

[54]See Hidehisa Horinouchi (Deputy Director-General, International Legal Affairs Bureau, Ministry of Foreign Affairs of Japan). Japan and the Arctic. At the Japan-Norway Polar Seminar, Monday, 26 April 2010, own archive.

[55]Japan is one the 13 countries that have their own permanent research stations there.

[56]Compare: Written Statement by the Delegation of Japan at the Second Meeting of Deputy Ministers of the Arctic Council 15 May 2012 Stockholm. At http://www.arctic-council.org/.../118-deputy-ministers-meeting-Stockholm-15-may-2012?...Japan. Retrieved January 11, 2013 from http://www.jcar.org.

2009, Japan has cooperated with Norway in deploying sounding rockets in the Norwegian part of the Arctic, which are to help learn more about polar atmosphere and factors influencing climate changes… Moreover, Japan participates in the debates regarding the Arctic at several international fora, including the International Maritime Organization" (Grzela 2012, p. 9).

The Republic of Korea (South Korea) is becoming increasingly active in looking at possible Arctic ventures as the melting glaciers open up tremendous opportunities connected with utilizing the natural resources of the region,[57] new sea routes, and chances for scientific discoveries. Korea needs a stable supply of cold-water fish and Korean fish industries need new fishing grounds like the Arctic Ocean. The Arctic fishery is expected to contribute to a steady growth of Korean fisheries in a long-term perspective and to activate the new growth engine in the fishery sector.

These needs and hopes are perfectly exemplified by the first visit to the High North by the South Korean President Lee Myung-bak in September 2012, during which the Korean leader presented and explained the interests of his country in the region. At a meeting in Greenland,[58] Lee Myung-bak and Kuupik Kleist (Prime Minister of Greenland) signed the memoranda regarding common sea routes, resources development and scientific cooperation, including geology,[59] and announced the plan of joint development of "low carbon, green growth" projects, the undertakings which seek economic growth and new jobs through environmentally friendly technologies and industries, without releasing greenhouse gases.[60]

In turn, in Norway, the President of South Korea and J. Stoltenberg, Prime Minister of Norway, agreed to partner with each other to tackle climate changes threatening the Arctic and to develop the resources-rich region without harming its indigenous people and the environment, including opening up polar shipping routes.[61] The meeting provided also a suitable occasion to sign the memorandum of

[57]More on the subject in Seon-hee Eom (2011).

[58]South Korean President Lee Myung-bak paid a visit to Greenland in 2012 without going to Denmark first and without the presence of the Danish Prime Minister who is responsible for the foreign policy and Denmark's security. This nearly gave Greenland the status of an independent state. More on the subject in South Korean President Lee Myung-Bak in Ilulissat. *Greenland Today*, September 10, 2012.

[59]Several agreements were also contracted, among others, state-owned Korea Resources Corporation (KORES) has agreed to work with Greenland mining firm NunaMinerals to seek opportunities for joint minerals projects, exploiting deposits of rare earths and other strategic metals. More on the subject at: http://in.reuters.com/article/2012/09/10/greenland-korea-minerals-idINL5E8KAAKP20120910. Retrieved September 15, 2012.

[60]See President Lee steps into the Arctic Circle for South Korea's Arctic initiative, http://www.korea.net/NewsFocus/Policies/view?articleId=102568. Retrieved October 24, 2012.

[61]In July 2012, industry experts and government officials from Norway and South Korea met to discuss the prospects of global warming creating a sea passage across the North Pole. And the benefits are clear. The distance between ports in Western Europe and those in Japan, China and Korea is 40 % shorter through the Northern Sea Route than the typical route through the Suez Canal and the Mediterranean. However, while Korea on the one hand is pursuing the business opportunities resulting from the effects of climate change, there continues to be a strong political will on the Korean Peninsula to take action against the causes of climate change. In early 2012,

understanding in which both sides obligated themselves to assist their transport companies in opening up polar shipping routes. Furthermore, the politicians confirmed a partnership in tackling climate changes and protecting the environment,[62] and biodiversity of the Arctic (Bennett 2012).

South Korea's indubitable asset is the shipbuilding industry (one of the world leaders), and the scientific and research potential. Due to large capabilities in the latter category, they conduct Arctic research in the polar station on Spitsbergen (established in 2002), called Arctic Station Dasan. In 2004, Korea Polar Research Institute (in the Korean city of Incheon) was launched, which spun off from the Korea Ocean Research and Development Institute. Simultaneously, "The agreement signed in May 2012 between Canada and Korea is to allow the first South Korean icebreaker 'Araon' to conduct research activities in the Canadian part of the Arctic Ocean (the Beaufort Shelf), checking for the region's gas hydrates found deep at sea or in offshore permafrost layers" (Grzela 2012, p. 11). It will also examine the effects of the release of methane gas on the Arctic environment.[63]

When discussing Asian countries which seriously link their future with the High North, it is absolutely necessary to include the **Republic of India** whose engagement in the Arctic dates back to the British overseas territories. It was then that India, by virtue of the Svalbard Treaty of 1921, became a stakeholder in the Arctic. Today, the country wishes to secure a better access to discussions and negotiations in environment protection, economy, and politics in this area.[64] "The specified goals list: development of multilateral cooperation with the Arctic countries not only in the sphere of economy and science, but also broadening it by adding political and strategic aspects; researching the political environment in the Arctic and establishing a special strategy of India towards the Arctic; diminishing the confrontational style of contacts in this region; promoting the Arctic as a nuclear-free zone. India is a strong advocate of global nuclear disarmament and can play a vital role in promoting the idea (Grzela 2012, p. 11).

(Footnote 61 continued)

Korea approved an emission trading plan that will be implemented in 2015. In July 2012, Korea announced a new program intended to develop a satellite for monitoring climate change and air pollution in Northeast Asia. See the statement made by Hong Yoo-deok (Director of Climate and Environment Research Institute) who said: "If the satellite finds the exact origin and the path of pollutants from China, we can mitigate the damage to our forests and agriculture," adding that such data could also be used for demanding compensation from China; quoted after Peter Bjerregaard, The Arctic passes climate threshold, June, 2012, www.norden.org., p. 3. Retrieved August 29, 2012.

[62]See more on the subject in Korea, Norway agrees on partnership for environment-friendly Arctic development. http://www.koreatimes.co.kr/www/news/nation/2012/10/120_119777.html (retrieved October 21, 2012) and http://english.yonhapnews.co.kr/national/2012/09/12/57/0301000000AEN20120912008951315F.HTML (retrieved September 21, 2012).

[63]More on the subject in http://english.yonhapnews.co.kr/business/2012/05/15/64/0501000000AEN20120515002800320F.HTML. Retrieved July 17, 2012.

[64]See more on the subject in Mitra (2012).

Although for quite a substantial period the government of India had not conducted any active policy towards the High North, the current dynamics of changes in the region has clearly intensified the research activities of this country. The Arctic studies in India date back to 1981 when the Department of Ocean Studies was established by the initiative of Prime-Minister Indira Gandhi and then a program of the Arctic research was developed. At the beginning of this century, India negotiated and signed a special program of Arctic studies with the Norwegian Polar Institute. In August 2007, the Norwegian part of the archipelago was visited by the first Indian scientific expedition. Since that breakthrough, India has been sending to the Arctic 3–4 scientific expeditions per year and in July 2008 "Himadri" research station was officially opened at Ny-Ålesund on the Spitsbergen.

The fact that the Republic of India is becoming the third country in the world in hydrocarbons consumption, responsible for 15 % growth of global demand for energy, in practice translates into the need for its active participation in the exploration of the polar riches. Since the country does not have sufficient financial and technical capabilities, India is counting first of all on the cooperation with Russia. "India already participates in Sakhalin projects and during the visit of Prime-Minister Manmohan Singh to Moscow in December 2009 the access of Indian companies to the European North of Russia was discussed. In December 2010, JSFC 'Sistema' and Indian largest oil and gas corporation 'ONGC' signed a framework cooperation agreement, and in 2011, it was announced that India might become a partner in the exploration of Trebs and Titov oil fields in Nenets Autonomous District" (Grzela 2012, p. 12).[65]

No less attention to the issues of the High North, and the Arctic in particular, is paid by the European countries,[66] out of which, among others, France, Great Britain, the Federal Republic of Germany, Poland, and Italy already have the observer status in the Arctic Council.

France and the Arctic date back to the 18th century when representatives of that country reached the region. Today, France's interest, strengthened by the appointment of the Ambassador for International Negotiations on the Arctic and the Antarctic (Polar Ambassador),[67] concentrates on:

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[65]The author, to prove her theses, lists the following sources: http://polish.ruvr.ru/2012_05_29/76362407/ (retrieved November 12, 2012); Official visit of Prime Minister to the Russian Federation, at: http://www.indianembassy.ru/index.php?option=com_content&view=article&id=797%3Apress-release&catid=53%3Avisits&Itemid=625&lang=en (retrieved November 02, 2012); Major deals between India and Russia, New Delhi, December 22, 2010, at: http://www.rusembassy.in/index.php?option=com_content&view=article&id=2122&Itemid=102&lang=en (retrieved November 02, 2012); Cabinet okays merger of ONGC's Russia assets with Sistema firms, at: http://articles.economictimes.indiatimes.com/2011-06-20/news/29679979_1_russneft-imperial-energy-bashneft (retrieved November 02, 2012).

[66]More on the subject in Interests and roles of non-Arctic states in the Arctic (2011).

[67]It is Michel Rocard, former Prime Minister of the French Republic, appointed to this post (Ambassadeur en charge des négociations internationales sur les régions polaires, l'Arctique et l'Antarctique) in March 2009. See Rocard nommé ambassadeur de France en Arctique. *Le Nouvel Observateur*, March 18, 2009.

- Economic activity in the Arctic which is perceived by the French as the last remaining area in the world with untouched resources of oil and gas. Hence comes the strategic attention to place some French companies there (for example Total S.A., a French multinational integrated oil and gas company), but also special care is devoted to fishing[68] and transport. The later issue finds a clear reflection in:
- Maritime security and maritime protection, as well as concern about pollution caused by ships, the increase in maritime traffic and danger of pollution (stemming from emissions and waste from ships) as well as oil spills caused by tankers or drilling rigs, and also rights and freedom of navigation. As T. Młynarski writes: "French officials have repeatedly underlined the economic benefits resulting from an opening of the North West Passage and the Northern Sea Route, and Ambassador Rocard challenged Canadian claims that the Northwest Passage is part of the Canadian territory, and thus supported EU and US positions" (Młynarski 2011a, p. 12);
- Consequences and challenges of climate change[69] which open new opportunities for tourism, marine fishing, commercial shipping, exploitation of mineral resources, and increased military activity in the Arctic thus defining new conditions for France, and;
- Broader geopolitical interest to face the challenge of the High North being dynamically militarized.

Also the **Federal Republic of Germany** recognizes the Arctic as a new and most important geopolitical sphere in which the country wants to be present, be it only by virtue of the size of its commercial fleet. Germany maritime trade routes are of crucial importance. About 90 % of external trade is transported by sea. Non-European trade counts for about 30 % of Germany's imports and exports. Of these, the trade with Asia accounts for 15 % of exports and 20 % of imports, so the new possibilities of sea routes in the Arctic waters are of tremendous importance. In 2009, the German Bremen-based Beluga Group claimed they were the first Western company to have crossed the Northeast Passage sailing from South Korea along Siberia towards Rotterdam. Germans import from Russia a variety of raw materials and supply goods to Western Siberia, hence their shipping companies are hoping to use the "North East Passage" along the Northern European and Asian coasts in the near future to transport goods between Europe and the booming regions of Eastern Asia. Germany seeks to broaden its influence in the High North via the EU and through own close cooperation with Norway, and treats the Arctic Ocean as a serious maritime challenge in the near future. Considering the fact that four out of five Arctic coastal states are NATO members—Canada, Denmark, Norway and the

[68]French officials have called for the establishment of special environmental zones. These zones shall protect those areas that are particularly vulnerable to human activities. This should include the protection from regular and irregular fishing activities.

[69]France is present in Svalbard by virtue of its scientific bases of Charles Rabot and Jean Corbel in the region of Ny-Ålesund, where several research programs are being conducted.

United States—in the event of a military conflict, those who are members of NATO would be urged to fulfill their treaty obligations.[70]

Germany does not have an overarching "Arctic Policy." Currently, its North policies are divided between its defense, foreign, and environment departments. Germany also executes its Arctic policy via the EU. All this is to assure achieving the following practical goals: (Interests and roles of non-Arctic states in the Arctic 2011, p. 8).

- Freedom of scientific research; Germany has been a world leader in polar research. Germany intensively develops its polar research programs, analyzing the regional as well as global implications of climate change. Currently, Germany maintains two permanent Arctic research stations: Koldewey Station at Ny-Ålisund in Svalbard and Samoylov Station in northern Siberia;
- Access to new energy resources as the country possesses advanced technologies to allow for extraction in extremely difficult conditions. Due to Germany's anticipated exit of nuclear energy production, there is a need to seek and secure new supply sources of hydrocarbons;
- Freedom of navigation (Germany has the world's third largest merchant fleet). Based on the 2006 White Paper, Germany seeks to prepare its fleet for expeditionary tasks (Paper White 2006);
- Guarantees that the strictest environmental standards are observed and that responsibility is taken for any environmental damage that occurs.

Germany's Ministry of Foreign Affairs wants to ensure that the region remains the "common heritage of all mankind," and the five countries bordering the Arctic agree for the riches of the region to be shared with other countries (Schwägerl and Seidler 2011).

When in August 2013 the *Guidelines of the Germany Arctic policy. Assume responsibility, seize opportunities* (www.bmelv.de) was made official, the Federal Government stated it views the Arctic as a region in transition with a growing geopolitical, geoeconomic and geoecological importance for the international community. The specific nature of the Arctic makes the region a central focus of German policy as it is perceived as having a great potential for the economies of Germany and Europe. At the same time, it is recognized that all actions must be carried out cautiously and sensibly, and only through enforcing the highest environmental standards the major environmental challenges could be met. The Federal Government will seek the establishment of protected areas to preserve Arctic biodiversity. The government stays convinced that as a partner with vast expert knowledge in the areas of research, technology and environmental standards, Germany can contribute to sustainable economic development and progress in this region. The Federal Government is ready to embark on maritime-sector cooperation (e.g. in polar technology) with the countries bordering the Arctic Ocean, and supports the right to freedom of navigation in the Arctic Ocean (Northeast,

[70]See http://www.german-foreign-policy.com/en/fulltext/57888. Retrieved October 25, 2012.

Northwest and Transpolar Passages) in accordance with high safety and environmental standards. The government is also working to guarantee the freedom of Arctic research, based on the conviction that scientific findings are of fundamental importance for the Arctic policy. The government remains committed to international and regional conventions[71]—in particular the United Nations Convention on the Law of the Sea, the MARPOL Convention, the conventions for the protection of the marine environment and on biological diversity—and focuses its activities to ensure that the Arctic remains the region of only peaceful purposes.

Great Britain has been present in the Arctic for over four hundred years.[72] Its current Arctic policy has been developed by the Ministry of Defence and endorsed by the Defence Board in December 2008 as the Arctic Strategy[73] which stresses the following: the necessity of maintaining stability and security in the region, developing cooperation, building trust, and joint governance structures. A significant determinant of this strategy of the early 21st century is the energy security of the country and the chances offered by the Arctic's resources. Hence the practical interests of the United Kingdom in this region (Interests and roles of non-Arctic states in the Arctic 2011, p. 9)[74] can be defined as generally concerning:

- New sources of oil, gas, minerals and fisheries;
- Scientific research on climate change and its impact on fauna;
- New shipping routes in the North. As stated by Młynarski (2011a, p. 14), "A key security aspect is to keep Arctic trade routes safe and open. As in the case of France, the UK still has the second strike nuclear capabilities and continues to patrol Arctic waters with nuclear armed submarines, and conducts military exercises in the Arctic";
- Opportunity to influence the international scene. It is of utmost importance in the British opinion as security in the Arctic is not only the sphere of economy, climate or environment, but also a military matter.[75] Therefore, the British Secretary of State for Defence, Liam Fox, on November 10, 2010 took part in the meeting of Nordic and Baltic defense ministers where he not only did signal his country's growing interest in the Arctic's security, but also pointed to Norway as Britain's "key strategic partner."[76] He also added that Great Britain

[71]This is how the Germans write about the Spitsbergen Treaty: "The Spitsbergen Treaty forms the legally-binding framework for states' rights and obligations with respect to the Arctic." Retrieved October 25, 2012 from http://www.german-foreign-policy.com/en/fulltext/57888.

[72]See Sect. 2.2. Currently, in the research center Natural Environmental Research Council (NERC) in Ny-Ålesund a 15-million-pound Arctic research-environmental program for the years 2010–2015 is realized. More on the subject in Arctic Research Programme at www.nerc.ac.uk. Retrieved: August 22, 2012.

[73]See Minister for International Defence and Security, at the Joint NATO/Icelandic Government conference, Reykjavic, Iceland on 29 January 2009, Ministry of Defence Archives, http://webarchive.nationalarchives.gov.uk. Retrieved: July 11, 2012.

[74]See also Depledge and Dodds (2011).

[75]See also Minister for International Defence and Security 2009.

[76]Over two thirds of crude oil imports by Great Britain come from Norway.

would more intensively than before observe the developments in the High North, particularly where the British interests lie (UK displays 2010).

In 2013, Polar Regions Department of the British Foreign and Commonwealth Office published a 40-page document titled *Adapting To Change: UK policy towards the Arctic* (Adapting to Change 2013) which, among others, states the following: "We will work towards an Arctic that is safe and secure; well governed in conjunction with indigenous peoples and in line with international law; where policies are developed on the basis of sound science with full regard to the environment; and where only responsible development takes place" (Adapting to Change 2013, p. 14).

In accordance with the document, the British government's approach towards the Arctic is guided by three principles: respect, leadership, and cooperation. The UK expresses full respect for the sovereign rights of the eight Arctic States and the people who live and work in the fragile environment of the Arctic. Fundamentally speaking, the UK is of the opinion that the economic governance should rest with the eight states and the people who live there. However, should the need come, the UK seems to be ready and willing to take on a leadership role in Arctic issues of global importance, to name only combating climate change which has such an important impact on the Arctic. The country emphasizes also the need for partnership with other states, business and international organizations in addressing complex issues affecting the Arctic. One might venture to say that *Adapting to Change*: *UK policy towards the Arctic* recommends a policy of balance that recognizes the differences among the Arctic stakeholders. This policy seems to reconcile the responsibility of the states for effective governance in a global environment with providing opportunities for economic growth and also ensuring prosperity for the people. The policy presents several actions the UK is taking in order to promote effective Arctic governance and protection of the environment. Obviously, the policy mentions British interests and openly encourages responsible activity of UK businesses.[77]

Another European country, which recently gained the observer status at the increasingly more important Arctic Council, is **Italy** whose concerns ENI and Enel opted for cooperation with the Russian Federation. On April 25, 2012, Italy's Eni and Russia's Rosneft signed a strategic cooperation agreement whose goal is the exploitation of oil and gas resources in the Arctic. The agreement was enlarged to include the exploitation of oil and gas in the Black Sea (Russian Rosneft). On the basis of the agreement (very similar to that signed a week earlier between Rosneft and the American concern ExxoMobil), ceremoniously accepted by the then Prime Minister Vladimir Putin, ENI received 33.33 % of shares in the holding with Rosneft which will undertake the exploitation of the Arctic deposits in the Barents Sea and the Black Sea.[78] The deposits are estimated to hold total recoverable

[77]See the full text of the document.

[78]Russia's Rosneft and America's ExxonMobil signed documents which laid out the details of the agreements on the strategic co-operation and joint projects of the two companies, signed in January

resources of 36 billion barrels of oil equivalent,[79] or twice less than the resources which Russia brought into the partnership with Exxon. Rosneft President Eduard Khudainatov estimates the joint investment with ENI at 125 billion USD, but it is ENI that is obligated to invest 2 billion USD in geological prospecting in the Barents and the Black Sea. ENI reports that the first exploration well in the Arctic Ocean blocks will be drilled only in 2020. Rosneft will also participate in ENI's international projects as part of the strategic partnership deal.

However, in the second half of 2013, the Russian conglomerate Rosneft, Gazprom and Novatek bought out shares in the Arctic natural gas fields from the Italian energy consortium of ENI and Enel[80] which the Italian companies had acquired from Yukos.[81] Thus the north gas fields which in four years will produce the output of an equivalent of the annual Russian gas exports to Germany became fully controlled by the Russians. The Italian consortium pulled out of the exploitation of these gas fields in Siberia making great profit. Owing to the afore-mentioned business deals, the Italians not only earned Kremlin's gratitude (for protection of Gazprom) but also, as stated by Kublik (2013): "made a fortune for acting as a middleman or, in fact, for providing a protective umbrella for Gazprom. For nearly half of the shares in the Siberian gas deposits, ENI and Enel paid ultimately approx. $0.6 billion and then sold them for nearly $5 billion."

(Footnote 78 continued)

2011 (on the Russian Black Sea shelf) and in August 2011 (on the Kara Sea in the Arctic). ExxonMobil has given Rosneft participation in its projects in U.S. (30 % in a project involving the extraction of difficult-to-access oil), in the Gulf of Mexico (30 % in the twenty oil fields owned by ExxonMobil) and 30 % in the project covering the extraction of shale oil in the Canadian province of Alberta. The investment is estimated at 200–300 billion USD. The final decisions regarding the investment into Arctic deposits will be made by Exxon and Rosneft on the turn of 2016. If the prices of crude oil fall down significantly, the venture Exxon-Rosneft will pay no taxes at all. As stated by A. Kublik, "Owing to this agreement, Exxon will enlarge its oil deposits in the Arctic which holds some 20–25 % of the world deposits of oil and gas yet unexplored. Moreover, in Russia, the exploitation of Arctic deposits does not meet so many protests by ecologists as in the West." Kublik, A. Antarktyczna alternatywa. *Gazeta Wyborcza*, April 21, 2012.

[79]See Co Włosi dadzą za Arktykę. *Gazeta Wyborcza*, April 26, 2012.

[80]One should keep in mind that the Italian state-controlled consortium ENI and Enel had a 49 % stake in SeverEnergia while the rest was owned by the company set up by Gazprom Neft with the private gas company Novatek, Russia's largest independent natural gas producer. .

[81]Yukos used to own SeverEnergia. In 2007, the company was sold off at a forced auction the proceeds from which were then used to pay off the settlement for back-tax bills as claimed by the government. As writes A. Kublik (November 24, 2013): "At the liquidation auction, which lasted 10 min, the consortium ENI and Enel purchased the lot which included SeverEnergia and a 20-percent stake in Gazprom Neft. The Italians paid $5.83 billion for the package but almost immediately recovered their investment. Soon after the auction and the formal acquisition of Yukos assets, the Italians sold the 20-percent stake in Gazprom Neft to Gazprom for $3.7 billion. Then, for 1.5 billion Gazprom repurchased from the Italian consortium a 51-percent stake in SeverEnergia which Gazprom later sold to the company in which Novatek had shares." Retrieved December 01, 2013 from http://wyborcza.biz/biznes/1,100896,15008703,Rosjanie_wykupili_Wlochow_z_arktycznych_zloz.html#ixzz2lgEoBgGX.

It is worth-mentioning that before Gazprom was the main partner of ENI in Russia.[82] It was with Gazprom that ENI established the consortium South Stream[83] which undertook the construction of a pipeline transporting liquefied gas across the Black Sea to southern Europe, bypassing both Turkey and Ukraine. In 2011, Italy's ENI and Russia's Gazprom signed an agreement confirming the handover of a Libyan oil field to the Russian giant.

Even such brief remarks on the increasing international interest in the region (mainly on the part of non-European states) allow to state that in the case of non-Arctic countries this interest becomes a distinctly emphasized element of their international policies and definitely is not a result of mere temporary fascination of a fleeting fancy.

The growing dynamics in the interest shown towards the High North ought to be translated into the inspiration for a serious discussion on the vision of developing the High North in the upcoming years, and the Arctic in particular.

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[82]ENI purchased the Yukos gas assets at auction after it went bankrupt due to the actions by the Kremlin, and then immediately resold the controlling packet of shares to Gazprom, which protected the latter from possible court suits by the shareholders of Yukos.

[83]In the presence of Prime Minister of the Russian Federation Vladimir Putin (in Sochi, at the International Investment Forum on April 16, 2011), Gazprom, ENI, EDF (French energy company) and Wintershall (German) signed an agreement on construction of the South Stream pipeline, a rival undertaking for the Nabucco gas pipeline. Russians first managed to sign the agreements with Bulgaria, Hungary, Serbia, Austria, Italy and Turkey through whose territorial waters the pipe on the bottom of the Black Sea will go. Then they convinced Italian ENI to diminish their shares and give the difference to the French EDF. In the venture, South Stream Gazprom owns 50 % of shares, Eni 20 %, EDF and Wintershall 15 % each. Gazprom estimates the investment at EUR 15.5 billion. The first leg of the pipeline (16 bcm^3 annually) from Russia to Bulgaria under the Black Sea, the Balkans, Italy and Austria will be ready by 2015. By the end of 2018, the South Stream Offshore Pipeline will allow 63 bcm of natural gas to be transported to European markets every year. See *Rzeczpospolita*, September 17–18, 2011.

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Chapter 3
The High North as a Part of the Global Climate System: Contemporary Challenges

Abstract Climate change will be the dominating subject of the twenty-first century. One of the consequences of climate change is the dearth or excess of water. Both do not only present imminent danger to many human beings but also present a major threat to the global balance. There is hardly any doubt that the current changes are unprecedented and likely to have profound effects. Glacier melting and growing precipitation increase runoff of fresh water to the Arctic Ocean which substantially decreases its salinity. The landscape of the High North is slowly altering, changing the unique fauna and flora of the region. The Arctic natural environment and human societies are deeply affected by the impact of climate change and similarly by the global economic development. Climate change is able to alter the nature and conditions of existence in the Arctic to a much larger extent than observed at the present time. This change impacts economy, health, the way of life, livelihoods and culture of the Arctic indigenous population.

Keywords Climate system · Snow and ice · Climate changes · Disputes on climate · Consequences

3.1 Climate Changes: An Attempt to Systemize

The world climate system is a complex structure full of various interactions, often times of two-direction character, in which even the smallest change on a global scale may cause weather anomalies or a trend alteration. As proven by the famous American mathematician and meteorologist Edward Lorenz (d. April 2008), weather is a chaotic system in which a tiniest turbulence, be it caused by a butterfly in Asia flapping its wings, may bring a tornado in the USA. Although climatologists derive their knowledge from the multi-year data, weather forecasts still are often wrong. However, dozens of years, and in some places even hundreds of years of recording air temperature, humidity, precipitation, wind speed and direction, sunshine hours, level of sunshine, and the number of hours of sunshine allow to state the following:

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_3

- Since 1950, there have been changes in extreme weather events, mostly in daily high temperatures and heat waves.
- There is a great probability that in many areas of the world, the 21st century will bring increased frequency of heavy precipitation.
- It is virtually certain (with at least 99 % probability) that the number of warmer and more frequent hot days will increase and there will be fewer extreme cold days.[1]
- It is very likely (with at least 90 % probability) that warm spells/heat waves will become more frequent and intense, and longer over most land areas.
- The average speed is expected to grow in the case of windstorms which derive their energy from the warm waters of future tropical cyclones (hurricanes and typhoons), although not in the case of every ocean; it is also probable that the number of tropical cyclones will either not change or even decrease.
- "Drought-affected areas are projected to increase in extent in Southern Europe, the Mediterranean basin, Central Europe, the central part of North America, Central America and Mexico, north-eastern Brazil, and southern Africa" (Ulanowski 2011).
- It cannot be excluded that the rising average sea level will cause the extreme high sea level in some areas of the world (Ulanowski 2011).

It should be stressed that the last fifty years marked an increase in spending on battling the effects of natural disasters, and the most money is spent by the developed countries.[2] However, fatalities caused by extreme weather events are much higher in the developing countries (from 1970 to 2008, over 95 % of weather natural-disaster-related deaths occurred in 95 % in the developing countries) and it is those countries that spend a significant percentage of their gross national income on combatting those phenomena.

On the basis of meteorological data, climatologists claim that the climate grows warmer.[3] Out of many definitions of climate, perhaps one worth-quoting is the one proposed by the Intergovernmental Panel on Climate Change (IPCC), according to which the climate is the statistical description in terms of the mean and variability of relevant quantities (such as temperature, precipitation and wind) over a period of

[1]See Jania (2012).

[2]See more on the subject in, among others *STERN REVIEW: The Economics of Climate Change*, or so-called Stern Report; see http://www.pl.boell.org/alt/download_pl/stern_shortsummary_polish.pdf (retrieved September 10, 2012), so-called Solar Report—CLIMATE CHANGE AND INTERNATIONAL SECURITY. Paper from the High Representative and the European Commission to the European Council, S113/08, 14 March 2008 (retrieved: May 02, 2010), or Werz (2008). *Zmiany klimatyczne i geopolityka.* Heinrich Böll Stiftung. http://www.pl.boell.org/alt/download_pl/Zmiany_klimatyczne_i_geopolityka.pdf (retrieved December 17, 2010).

[3]See more on the subject in, among others: Siergiej (2012). Ocieplenie—kolejny rekord za 2–3 lata. http://wyborcza.pl, January 27, 2012 (retrieved February 03, 2012); Drabińska, U. Globalne ocieplenie—Ziemia wiruje szybciej. http://wyborcza.pl, February 23, 2012 (retrieved February 28, 2012); Siergiej, P. Globalne ocieplenie—przekonanie rośnie wraz z temperature. http://wyborcza.pl, April 20, 2012 (retrieved: May 03, 2012); Ulanowsk 2012c.

time ranging from months to thousands or millions of years (the standard period of time is 30 years). In a broader meaning, it is the state of the climatic system, highly complex and constantly changing under the influence of its own internal dynamics and because of external forcings, consisting of the atmosphere, the hydrosphere, the cryosphere, the land surface and the biosphere, and the interactions between them (Climate Change 2007, pp. 78–79).

The definition includes the term biosphere as an active variable being modeled by the climate system and also affecting it through the living organisms, including human beings.[4]

Even this nut-shell definition points out to the complexity of this multidimensional problem. Moreover, it makes the prediction of possible future development of the variables extremely difficult. However, it seems necessary as the main reasons for climate research is to predict its future shape through learning the phenomena occurring today. The significance and value of such knowledge on the shaping of weather is particularly appreciated by the representatives of the worlds of politics, economy, and the military for whom the reasons of forming a given meteorological situation and its effects may provide a key for making certain decisions.

Climate changes are natural events and over periods of time the climate has changed on several occasions which is proved by geological observations (for example, glacier footprints in Northern and Central Europe), or in more contemporary epochs by examining the historical sources such as chronicles, works of poetry and prose, or archeological findings. The changes may be due to the natural internal processes, resulting from the dynamics naturally occurring in the climate system, or external, caused by the influence of a factor from outside of the system and of an anomalous character. An example of such exogenous changes may be volcano eruptions, solar variations and anthropogenic forcings understood as human activities altering the environment in which the entire eco system and land-use change (Climate Change 2007, p. 81). In spite of being a part of the biosphere, people a long time ago have already crossed their ecological niche being able to adapt the environment to their own needs on the scale unreachable to any other species. Human beings through their deeds, according to the proponents of the theory of "global warming," highly influence the climate change of the planet. This particular aspect of climate changes is emphasized by the United Nations Framework Convention on Climate Change (UNFCCC) of 1992 which defines them as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (UN Framework 1992).

Do we really observe climate changes today and if so, what is their background? Since the 1970s, this issue has been the subject matter for climatologists throughout

[4]See Marsz and Styczyńska (2013).

the world. The attempt at systemizing the findings and drawing conclusions was made by the Intergovernmental Panel on Climate Change (IPCC), functioning since 1988 and established by United Nations Environment Programme (UNEP), and the World Meteorological Organization (WMO). The reports present the current knowledge on the subject and their authors without any hesitation claim that significant warming of the climate system is indisputable. It is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and the rising global average sea level.

From 1906 to 2005, the average temperature of global surface has increased by 0.74 °C (IPCC Report 2007). The warming trend over the 50 years has accelerated and kept growing by 0.13 °C per decade, and the recent twelve years rank among the warmest years in the instrumental record of global surface, measured since 1850. Rising air temperature means that it might be more humid and the observations show that the atmospheric moisture content indeed rises. Based on ocean temperature observations, the thermal expansion of seawater, as it warms, has contributed substantially to sea level rise in recent decades.

According to the estimate by the National Center for Atmospheric Research (NCAR) in Boulder (Colorado, USA), till the end of this century the temperature will rise by 1.1–6.4 °C, depending on the actions people will undertake to stop or slow down global warming. This will cause the rise of the sea level by 0.18–0.59 m.[5] Melting glaciers are responsible for 40 % of this increase. "Over the 1961–2003 period, the average rate of global mean sea level rise is estimated to be 1.8 mm per year. The global average rate of sea level rise during 1993–2003 is 3.1 mm per year, which makes it a much faster rate" (Ulanowski 2007).

Such a development threatens further changes in snowpack and snow cover, greater probability of extreme weather events (disastrous droughts or floods) and desertification of huge areas in Africa, North America, and around the Mediterranean Sea. The catastrophic effects will be particularly felt by the inhabitants of the developing countries which have a relatively low adaptive capacity. Sea level rise will flood coastal lowlands and river magadeltas, and small islands may completely disappear. Agriculture and farming in many areas will face the problem of the lack of water and disappearing soil moisture. It will be very difficult to assess the consequences of such biodiversity decline connected with the extinction of plant and animal species (Climate Change 2007, pp. 8–9).

Generally speaking, this is what research data and projections of future changes in climate say. Do they have to come true? Certainly, no one knows the answer as we have problems with deficiencies in our understanding of the climate, its phenomena, the factors affecting it, and the interactions between several factors. How they all work together remains a mystery to us, thus opening up too much space for interpretation of the results. Nearly all scientists agree that indeed climate changes

[5]The prognosis of German scientists from Potsdam Institute for Climate Impact Research (PIK), which analyzes the present-day retreat of glaciers and ice caps of Greenland and the Antarctic, shows that within the next 100 years the sea level may rise even by 1 m.

are actually occurring and even accept the theory of their anthropogenic origin as very probable (Brodawka 2009, p. 28). Any attempt at prognosticating carries too much risk as these phenomena defy predictability, and anomalous events may occur again as they have so often in the past. It is particularly true about the Arctic which is a very special and much sensitive area of key significance to the climate of our planet.

3.2 The High North: Characteristics of Climate Changes

North Atlantic[6] and the Arctic are an extremely important component in the system of global oceanic and atmospheric circulation deciding about the weather and climate in Europe. Waters of the Atlantic are a brace for all the processes occurring in this part of the Arctic. Oceanographers from the Institute of Oceanology of the Polish Academy of Sciences have proved that they affect both air temperature and condition of sea-ice around Spitsbergen. In summer, that correlation is not dramatically significant because the Arctic's solar exposure is 18–24 h per day allowing for much warmth, but in winter the ocean is the sole source of heat for those dark and frosty areas, and so powerful that it keeps a part of the Nordic Seas ice free. Surface of the ocean uncovered by ice then transfers fluxes of heat to the atmosphere and water columns cool down much below the sea surface heated in the summer. Cooled off water mass is denser and it sinks initiating deep-sea water circulation. The loss of heat is compensated by the West Spitsbergen Current flowing from the south.

Hence, if we search for the reasons which probably have great influence on climatic events and might strengthen the occurring changes, we need to consider three elements of the puzzle:

- Solar radiation (reflection of the sun);
- Thermohaline circulation—THC (from Greek: *thermo* for heat and *haline* for salt);
- Increased emission of carbon dioxide (CO_2) and methane gas (CH_4).

It should be stressed that both snow and ice play a very important climatic role as they are characterized by high reflectivity of solar radiation reaching 85–90 % (ACIA, Impacts 2004, p. 34). In other words, only 1/10 of the light is actually absorbed while snow and ice reflect back to space most of the solar energy that reaches the surface. (For comparison, the coefficient of light reflection for soil or vegetation equals 20 %, and for water a mere 10 %.) In turn, that creates an additional mechanism causing climate warming: the more sea ice and snow cover and glaciers melt, the more the Earth surface heats up so the melting will be even greater the following year. Such dependence has all the characteristics of the

[6]See Styszyńska (2005).

so-called "feedback" mechanism by which Arctic processes can cause more warming, and so on, creating a self-reinforcing cycle by which global warming feeds on itself, amplifying and accelerating the warming trend in the High North (ACIA, Impacts 2004, pp. 34–35).

The occurring processes can be best observed in the Arctic examining, for example, the impact of the ocean on them (visible, among others, in the changes in the sea-ice extent of the Arctic glaciers).[7] Such research allows for a better understanding of the mechanisms of heat transfer and exchange between ocean and atmosphere, which decides about the climate. It is the thermohaline circulation which is thought to have a most significant impact thus shaping the global climate.

Opposite to the wind-driven surface currents, this is a deep-water movement driven by density differences resulting from the combined effects of variations in temperature and salinity.

What it amounts to is that warm currents carry salty tropical water up higher latitudes where it cools down and thus becomes denser. Through the process called thermohaline ventilation, observed only in the four seas which are the driving forces for THC (the Labrador and Greenland Seas in the northern hemisphere, and the Weddell Sea and the Ross Sea in the southern one), the surface waters sink into the deep ocean, feeding deep-water currents that generate tremendous kinetic power pushing the deepwaters up in the high latitudes. This process is possible due to higher salinity of surface waters which in spite of mixing with less salty waters gain after the cooling down the density allowing them to sink. This high latitude cooled water travels then in deep-water currents to lower latitudes where it warms up again and moves upwards, and later, turning northwards, fills up the space left out by the sunk deepwater, which starts the whole process anew (Walczowski 2009, pp. 21–23).

The importance of THC cannot possibly be overestimated. Water has very large heat capacity and the oceans are the primary reservoir of atmospheric heat on Earth. Owing to the thermohaline circulation, warm, salty water can be transported from tropical regions north to the Polar Regions through which the climate at high and mid-latitudes warms up and simultaneously becomes milder in the equatorial regions. Huge volumes of warm Atlantic water travel north to the Arctic[8] and carry tremendous amounts of warmth from the equatorial zone to the High North. The water flowing along the north-western coasts of Europe (Gulf Stream) releases heat to atmosphere and surrounding waters. That is why Europe has a mild climate and the average temperatures are 5–10 °C warmer than at the corresponding latitudes in North America, devoid of warm currents. Observations show that that a 200–300 km wide current of warm Atlantic water flowing to the Arctic might

[7]It is supported by glaciological research of Polish polar stations on Spitsbergen. In 1980s, the work of Polish polar stations was resumed and research is conducted on biology and ecology of the Arctic. Every summer, since 1987, the Institute of Oceanology of the Polish Academy of Sciences organizes a research cruise of the RV Oceania on the waters of the Barents and Norwegian Seas; see http://www.sprawynauki.waw.pl. Retrieved September 06, 2007.

[8]Such research was conducted, among others, by the international expedition headed by Prof. J. Piechura of the Institute of Oceanology of the Polish Academy of Sciences.

behave differently in different periods of time. For example, in 2003, it behaved differently than in the past: it was more rapid and condensed, which means it was carrying more heat. Scientists claim that "…too quick a warming may bring just the opposite results and that is the climate cooling. A quick warming will cause a decrease in the density of sea water. Simultaneously, the freshwater from the glacial melt will come to the ocean. The changes in the distribution of temperatures, and density and salinity of water will cause very dangerous fluctuations in the Atlantic circulation."[9]

The phenomenon is very sensitive to changes, particularly in terms of salinity. Too low salinity in the surface waters where deep-water currents are created may slow down or even completely shut down the process which is the main driving force for THC. There exist numerical models and paleoclimatic evidence according to which the slowdown or turning off the thermohaline circulation may have caused the latest glaciations (Walczowski 2009, p. 30).

In the Arctic, on the surface, there is cold freshwater from Siberian rivers and the gradually melting ice. Salty water is heavier than fresh water; therefore, they do not mix although fresh water should be lighter and come up to the surface. This causes a much atypical situation where the warm water underneath does not mix with the cold water on the surface, which in turn "keeps the ice alive."[10]

However, research done by oceanographers shows that the discussed phenomena are undergoing gradual changes. "In recent years, very high volume of warm water has come from the Fram Strait at Spitsbergen latitude. In 1994, warm currents were observed in the deep along Siberia, on the Laptev Sea. The layer of warm water is growing bigger. It keeps going up and gradually mixes with the cold water. The water grows warmer, and when it reaches the surface, the ice melts" (Piskozub 2007). This is also connected with another significant climatic phenomenon for Europe called the Arctic Oscillation.[11] The same system controls the wind direction or pattern of winds over the Arctic. When the Arctic Oscillation index is positive or AO is in its positive phase, the winds push the ice away from Siberia. This is the phenomenon known to oceanographers as upwelling in which deep, cold water rises toward the surface. "In the Arctic, we may soon have the atypical warm water upwelling which will melt the ice from the Siberian side. When the ice starts

[9]See the article in the section Climatology titled Sprawy Nauki. *The Bulletin of the Ministry of Science and Higher Education 2000, 12*, p. 2, http://www.sprawynauki.pl. Retrieved August 14, 2002.

[10]Since we have recently noted increase in freshwater flow to the Arctic Ocean from rivers runoff and glacial melt, it is theoretically possible, as the planet continues its warming process, that the decrease in salinity in Greenland Sea surface waters will reach the point where the water is no longer dense enough to sink and halt the Atlantic Deep Water formation, switching off the THC. This would cause an abrupt climate change and possibly trigger another ice age in the northern hemisphere, contrary to the so far observed changes.

[11]It has been observed that the air pressure differential between Island and Portugal, or the Azores, changes the climate in Europe in winter. When the AO index is positive, the air pressure is low and warmer, wetter conditions over northern Europe are observed. Southern Europe is then very dry.

melting from below and above, in our lifetime, there is a definite possibility that the Arctic, or at least its large part, will be ice-free" (Piskozub 2007).

Indeed, the loss of cryosphere is visible particularly in the Arctic where the extent of sea ice has shrunk by 2.7 % per decade starting in 1979 when satellite data gathering began.

The global average sea level rose alarmingly fast at an average rate of 1.8 mm per year over 1961–2003, and at an average rate of about 3.1 mm per year from 1993 to 2006. The main reason for it has been attributed to the thermal expansion of the oceans which is the increase in volume that results from raising temperature and warming water (Climate Change 2007, p. 30). Of the more than 29,000 observational data series, from 75 studies that show significant change in many physical and biological systems, more than 89 % are consistent with the direction of change expected as a response to the warming climate (Brodawka 2009, p. 31). Later studies confirm the findings of scientists from IPCC. Although the average global temperature from a few recent years stopped at the level of 2007 rather than grew, the year 2010 was one of the two warmest years on record in the history of record keeping, and glaciers have lost mass for the 20th consecutive year (Willett et al. 2011, p. 27). The observations still show a continuation of sea level rise, accelerated melting of Greenland glaciers and the first signs of warming over some of the Antarctic which had not been observed until now. Simultaneously, a pause in the melting of the Arctic has been noted, which is attributed to natural factors (Physical Climate 2010, pp. 9–10).

Increases in the air and ocean temperatures in the Arctic also influence greenhouse gas emissions, mostly carbon dioxide and methane. Their large amounts are trapped as organic matter[12] in the permafrost (frozen soil) that underlies much of the Arctic land surface.[13] Once again, we have here a positive feedback loop: when the surface layer of the permafrost thaws, organic matter decomposes, releasing greenhouse gases (methane and carbon dioxide) to the atmosphere which causes more warming (ACIA, Impacts, p. 38). The effect may be turned away through the advancement of the tree line northwards, which should absorb and store large amounts of carbon through the process of photosynthesis. In a more distant future (should warming not stop), there exists a danger of methane freeing itself from clathrates[14] (water and CH_4 formed at high pressure) on the seabed and an

[12]It is a microbial decomposition of organic matter containing carbon, or decomposition on a grand scale. According to Dr. E.A. Schuur of the University of Florida, permafrost traps twice the amount of CO_2 compared to the planet's atmosphere. See *BioScience*, September 2008.

[13]Permafrost regions occupy nearly 24 % of the land surface of the Northern Hemisphere, and include the Arctic Circle, Siberia, Canada, Alaska, Scandinavian Peninsula, high mountain areas, among others the Alps, and Tien-Shan.

[14]Methane clathrate (methane hydrate, methane ice, methane hydrate) is a crystalline solid that consists of a methane molecule surrounded by a cage of interlocking water molecules. Methane hydrate is an "ice" that only occurs naturally in subsurface deposits where temperature and pressure conditions are favorable for its formation. Methane clathrates were discovered only towards the end of the 19th c. and today there is some interest in using methane hydrate deposits as a source of natural gas.

accelerated CO_2 absorption by a warmer Arctic Ocean, which may endanger local fauna (ACIA, Impacts, p. 39).

In the conditions of rapid global climate changes, and this exactly is happening, a critical role and impact of the Arctic on the rest of the global climate system is indisputable. Climatic processes affecting the High North will reverberate around the globe and cannot possibly be disregarded.

3.3 Disputes on the Nature of Climate Changes in the High North

Global warming predictions and assessment have a great many opponents supported by a very powerful economic and political lobby supporting oil and coal industries. They seem to use any and every opportunity to undermine the credibility of the work of climatologists. Surprisingly, the task is not all that difficult, especially after the hacking and publishing of thousands of emails from the servers of the Climatic Research Unit (CRU) at the University of East Anglia (UEA), which brought about the so-called Climategate. Similar effect had also the insouciance presented by some collaborators of the Intergovernmental Panel on Climate Change (IPCC) as regards diligent scientific research.

In spite of the somewhat damaged trust in the experts of climatology,[15] there exists scientific evidence for climate warming. Therefore, humanity will have to face this tremendous challenge and the huge world-wide debate regarding counteracting global warming is only starting.

Observations show that due to global warming, compared to the pre-industrial era, we should expect a temperature increase between about 1.4 and 3.2 °C. "Climate models suggest that the increase in global average temperature of Earth by about 1–2 °C would further Arctic warming and temperature rise by about 3–6 °C. In other words, it will be comparable to those inferred for the last interglacial period 125,000 years ago, when the average sea level rose about 6.6–9.4 m above present-day levels" (Ulanowski 2010). The climate in the High North has kept changing in various periods of history of our planet. For example, the interglacial period, started some 24,000 years ago, was characterized by slow but constant increase of temperature. The area of today's Greenland underwent warming at the rate of 2 °C per 1000 years, and in the period between 7000 and 3000 B.C.E. the regional climate reached average annual temperature higher by ca. 2 °C, relative to the period of 1961–1990. This resulted in melting the glaciers of Spitsbergen and northern Norway almost completely and the significant advancement of the tree line northwards.[16] Thus conditions were created for the penetration of the High North

[15]See Ulanowski, T. Klimatolodzy na lodzie. http://www.wyborcza.pl, February 15, 2010. Retrieved February 16, 2010.

[16]Compare Walczowski (2009), p. 28.

by the hunting communities from the South, searching for animals and fish in the Arctic region.

It should be remembered, however, that during the previous millennium the periods of warming alternated with cooling down. The longest and best known period of temperature increase, called the Medieval Warm Period (MWP) or Medieval Climate Optimum took place between 1200 and 1400, and was particularly significant in the High North. It marked the boom of the Viking settlement on Greenland, began in the 10th century,[17] which, however, soon started declining due to the failure of adapting to an increasingly harsh climate and difficult living conditions,[18] significantly influencing the limitation of contacts with continental Europe. The last colonies were deserted in the years 1534–1541.[19] It was already the time of The Little Ice Age (LIA) lasting until 1920. The average annual temperature in northern high latitudes was then lower by nearly 1 °C than that prevailing throughout the entire 20th century. A consecutive period of warming happened in the years 1920–1940, and later there followed another short time of warming preceding the period of growing temperatures lasting since the 1970s.[20]

This latest period of warming is discussed in the Arctic Climate Assessment (ACIA) report, prepared by two Arctic Council working groups: the Arctic Monitoring and Assessment Programme (AMAP) and the Conservation of Arctic Flora and Fauna (CAFF), with the collaboration of the International Arctic Science Committee (IASC), non-governmental organization whose aim is to advance Arctic research programs. Based on the up-to-date scientific findings, it has been concluded that the Arctic as a whole is clearly undergoing rapid warming trends. Arctic average temperature has risen at almost twice the rate as the rest of the world in the past few decades. There are regional variations due to atmospheric winds and ocean currents, with some areas showing more warming than others. In Alaska and western Canada, for example, temperatures have increased as much as 3–4 °C in the past 50 years. Simultaneously, there exist places where the temperatures decreased. For example, the annual average temperature for the period 1954–2003 reflects cooling of up to 1 °C over southern Greenland (ACIA, Impacts, pp. 22–23). The European part of the High North does not show very dramatic changes in terms of temperature. Most research stations recorded a modest increase in mean annual temperature (about 1 °C) between 1954 and 2003, with slightly higher winter temperatures. The Faroe Islands, Iceland, and the afore-mentioned southern Greenland have become moderately cooler. Starting in 1990, greater warming was observed in northern Scandinavia, particularly Iceland, Svalbard, and East Greenland, but cooling was observed in other areas such as the Kola Peninsula (ACIA, Impacts, p. 1004). Record warm air temperatures were observed over

[17]See more on the subject in Hødnebø and Krisjansson (1991), Jansson (1996), Wooding (2001).

[18]See more on the subject in Flaum (1990), Roesdahl (2001).

[19]See Kubiak (2009), p. 56.

[20]See Walczowski (2009), p. 28.

Greenland in 2010. This included the warmest year on record for Greenland's capital, Nuuk, in at least 138 years (Richter-Menge and Overland 2010, p. 6).

Arctic-wide research findings need to be interpreted very carefully, as they are highly susceptible to factors on a local scale, and not that of regional or global scope. In the case of European High North, probably such anomalies are due to the North Atlantic Oscillation (NAO).

The NAO describes co-variability in sea-level pressure between the Icelandic Low and the Azores High. When both are strong (higher than normal pressure in the Azores High and lower than normal pressure in the Icelandic Low), the NAO index is positive, and delivers warmer and wetter air to the North Atlantic. When both are weak and the pressure difference is small, the index is negative and results in higher precipitation, increased storm activity and rainfall in Europe (ACIA, Impacts, p. 24). The North Atlantic Oscillation[21] impacts the climate most profoundly in winter and together with Arctic Oscillation is responsible for 20 to 30 % of variability in atmospheric pressure and up to 50 % of variability in the observed temperature in the entire Arctic (Przybylak 2007, p. 97). The winter of 2009–2010 had the most extreme negative NAO and that is probably what caused a very severe winter in Europe (Masters 2010).

It is of note that in spite of its volatility, the increase in average temperatures hardly exceeded the data during the 1920s and 1930s (ACIA, Impacts, p. 36–37). This is frequently brought up as evidence for the natural causes of the current warming, as in the years 1920–1940 the concentration of greenhouse gases was much lower than today. These two periods in the climatic history, however, differ much in scope: the previous one related mainly to the Arctic and was in essence a change in redistribution of heat with the unchanged heat balance of the planet, while the current one is observed in the entire globe (Walczowski 2009, p. 28). In addition, the temporal and spatial distribution of temperature has altered significantly. The previous one affected the climate more strongly in eastern Arctic in winter, while the current one is significant in the western part in spring and fall. The debate regarding the nature of appearing changes has found no definitive answers so far (Przybylak 2007, pp. 107–8).

One effect of warming of the atmosphere comes from widespread melting of sea ice cover whose presence and formation around the North Pole is a unique feature of the Arctic. There are two months each year that are of particular interest: September, at the end of summer, when the ice reaches its annual minimum extent, and March, at the end of winter, when the ice is at its maximum extent. Since 1979, satellites have been used routinely to measure this as they are able to monitor the

[21]Prof. W. Walczowski claims that: "Of particular importance is the Atlantic circulation system called MOC—Meridional Overturning Circulation. It is a system of surface currents carrying warm, salty water polewards, and surface and deep ocean currents transporting cold water toward the Equator. People frequently call that circulation mistakenly the Gulf Stream. The Gulf Stream is one out of a number of separate flow components of the Atlantic meridional overturning circulation (MOC), part of what is popularly called "the conveyor belt" that serves to redistribute heat and salinity between different parts of the world." See Walczowski (2011).

extent more accurately than it was possible ever before. The data obtained showed constant decrease of sea areas covered with ice in the Arctic. The March 2010 ice extent was 15.1 million km^2, about 96 % of the 1979–2000 average of 15.8 million km^2; then in September, sea ice extent reached a minimum for the year of 4.6 million km^2 which was 31 % lower than the 1979–2000 average of 6.7 million km^2.

In 2012, the sea ice cover decreased more than in 2007 when the record low of 4.17 million km^2 was recorded on September 18. According to the data published on the website of the American National Snow and Ice Data Center (NSIDC) in Boulder, Colorado, on Sunday, August 26, 2012 the Arctic sea ice cover melted to its lowest extent and fell to 4.1 million km^2 (the satellite measurements have been conducted since 1979).[22]

It was the third-lowest recorded minimum since the satellite record began, surpassed only by 2008 and the record low in 2007. The tendency is clearly decreasing: the eight of the ten lowest minimums of summer sea ice extent have occurred during the last decade (Perovich et al. 2010, pp. 16–17). The most probable cause is the feedback mechanism between ocean and atmospheric processes, resulting in increased inflow of heat into the Arctic. It is impossible, however, to decide which one actually initiated the intensified transfer of energy. Nevertheless, any change in the heat balance of the region lowers the albedo triggering other warming factors further warming the climate (Marsz 2007, pp. 182–185). Theoretically, this should in time lead to a complete disappearance of sea ice by the later part of the 21st century, as reported by IPCC (Brodawka 2009, p. 61), but any categorical statement when or even if it is going to happen is virtually impossible due to insufficient understanding and gaps in present scientific knowledge as well as the unpredictability of the changing ocean processes.

The Greenland Ice Sheet (1,640,000 km^2) is the second largest ice mass in the world and melting glaciers in Greenland together with thermal expansion of the oceans are the main cause of the sea level rise (ACIA, Impacts, p. 205). Summer seasonal average (June–August) air temperatures around Greenland were 0.6–2.4 °C above the average of the 1971–2000 period. This brought about intensified calving of Greenland ice sheets, and Greenland glaciers collectively lost an area of 419 km^2 which is more than 3 times the loss rate of the past decade averaging 120 km^2/year, which was already much warmer than the previous one (Box et al. 2010, p. 55). The surface-melt area increased by 17 % from 1979 to 2002, or by an area roughly the size of Sweden (ACIA, Impacts, p. 40).

Additional difficulties are connected with the estimation of ice sheet mass which before the application of modern observation techniques bore a substantial margin of error. Although those mechanisms are still far from perfect, they allow proving quite accurately the decreasing trend in the extent and mass of the ice sheet in

[22]See Ulanowski (2012b). It is of particular interest since the ice cover in the Arctic Ocean has its minimum extent in September and the maximum extent generally occurs in March when it grows more than three-fold after winter.

Greenland (Siergiej 2012). It is evidenced by the change in ice discharge from outlet glaciers combined with increasingly negative surface mass balance and surface lowering in outlet glaciers measured directly by laser altimeters, and the reduction in the mass of the ice sheet as measured by the GRACE satellite (AMAP 2009, p. 32). M. Tedesco, glaciologist at the City College of New York, claims that the year 2012 was record-breaking when nearly 600 billion tons of ice and snow melted,[23] and in July, 97 % of the entire Greenland ice sheet indicated surface melting.

What surprised scientists most, however, was the melting of the Greenland ice sheet in January and February of 2013.[24] This was also reported by US meteorological military satellites which established that at the beginning of February 2013, the ice sheet melted over the length of over 1000 km, and the width was 20–100 km. The melting zone extended northwards to the Danish Straits separating Greenland from Iceland. In some places, Greenland saw melt throughout most of winter. The melting occurred in the area encompassing 50–70 thousand km^2, which never happened before. As stated by the afore-mentioned M. Tedesco, not only in southern Greenland were the temperatures higher than average by 5–6 °C, but it also concerned Iceland and the Spitsbergen, with the temperatures in January and February in the latter 10–12 °C above normal (Hołdys 2013).

Such a situation begs a question about the reasons for such an unusually warm winter in the Arctic part of the High North. Many researchers point out to the weather blocking system which causes warm air from the South to come to these regions for a number of weeks. The reason for those blocking patterns is not clear. As stated by Hołdys (2013), "Many researchers point out to the growing North Atlantic sea surface temperature. Since the beginning of the 20th century, it increased by some 1.5 °C, at almost twice the rate of the rest of the world. The North Atlantic seems to be ahead of the climatic changes of the globe. But it also accelerates them, pumping additional warmth into the Arctic. That disrupts atmospheric circulation slowing the jet stream at the height of 10–12 km, which is conducive to blocking patterns…. As a result, the average temperature in some regions of the island has grown throughout two decades by 10 °C in winter and 4° in summer, says meteorologist Edward Hanna from U.K.'s Sheffield University."

Other symptoms of changes are equally serious. Snow-cover extent in the Northern Hemisphere has decreased by 5–10 % since 1972, and such rapid processes are a rarity in climate models simulating the global warming. In spite of that, more precipitation is prognosticated, particularly of snow and snow and rain. The greatest increases (15–30 % by 2050) are expected in Siberia, but snow will tend to lie on the ground for 10–20 % less time each year over most of the Arctic, due to earlier and more intensive melting in spring (AMAP 2011, p. 7). Accelerated thawing of the Arctic permafrost, particularly in Siberia and Canada, made the line

[23]In comparison, in the 1990s, not more than 30–50 billion tons melted. See Hołdys (2013).

[24]See Hołdys (2013). Odwilż na Grenlandii and also, by the same author, Zaskakująca odwilż na Grenlandii. www.wyborcza.pl. Retrieved March 08, 2013.

of permafrost move to the north (Hołdys 2013). The ice-free season of rivers became extended by at least 7 days and in some places even by three weeks.

The reasons for climate changes in the High North are still being discussed[25] and the direction of the trend is not cast in stone. Probably, the upcoming two decades will give answer to the question if the observed present trends will continue in a relatively stable manner or whether it is a result of periodic fluctuations in climate. It is highly probable, however, that even if we are currently dealing with natural climate variability, which, as said before, occurred in the Arctic before the Industrial Revolution, anthropogenic factors affect the climate in a much significant way. It is evidenced by the abruptness of the processes and high vulnerability to anomalies which make the weather, particularly since the early 1990s, rather unstable with a clear tendency towards warming.

Decrease in extent of sea ice cover and the rapid warming trend in Greenland mean that the southern regions of the Arctic are parting with frost. And, as clearly seen, it happens at a great pace since ice begins melting even in winter. It could be called polar or Arctic amplification, and the term is actually used to define the tendency of global climate forcing as greater climate change near the pole is observed in comparison to the rest of the globe. "When the global average temperature drops, the change in the Arctic is the fastest. When the planet warms up, again the Arctic is in the vanguard. For the last four decades, the Arctic has warmed at about twice the rate of the rest of the globe."[26]

According to the Serbian mathematician named Milutin Milankovitch, who in the 1930s presented a theory which explains the climate change and its variations, they are mostly determined by the varying position of the Earth relative to the Sun. First of all, the shape of the orbit of the Earth around the sun changes from elliptical to more circular in the cycle of 100,000 years. Secondly, the tilt of the Earth's axis, owing to which we have the different seasons, varies from 21.8° to 24.4° and back again on a 41,000-year cycle. Thirdly, the Earth wobbles on its axis like a spinning top over a 23,000-year cycle. On a cosmic scale, we should add to the above the varying solar activity which also influences the climate of our planet and which also fluctuates.[27] Moreover, there occur phenomena on the Earth which can significantly

[25]More on the subject in *Arktiska miljöproblem under den nordiska luppen.* www.norden.org, October 29, 2012. Retrieved October 31, 2012.

[26]And, at the same time: "While the Antarctic for the first time became covered by ice caps 34 million years ago, the North of the globe became cold only 2.5 million years ago. 3 million years ago, sea-surface temperatures near Spitsbergen were between 10 and 18 °C (50–64 °F) during the mid-Pliocene, while current temperatures are around or below 0 °C (32 °F). In that period, immediately preceding the Ice Age, the average temperature on Earth would have been higher than today's by only 2–3 °C, and tropical oceans would not have been any warmer than today, as if the entire warmth surplus had accumulated then in the Arctic." Hołdys (2013).

[27]It is worth mentioning that some 20 thousand years ago ice sheet or ice cap covered most of the Northern Hemisphere, the climate was dry and the sea level was more than 100 m lower than at present. 11,500 years ago, when the glaciers began to retreat, we entered the human epoch Holocene. Today, as maintains the Dutch Nobel Prize winning atmospheric chemist Paul Crutzen, we entered the "Anthropocene," the epoch in which humankind has so altered the Earth that it led

influence the climate. Every now and then, volcanoes erupt, and when a volcano erupts, it throws out large volumes of sulfur dioxide (SO_2) into the atmosphere, causing atmospheric cooling (paradoxically, they are also the original source of carbon dioxide emissions). In addition, there are also changes in the ocean currents circulation patterns which transport vast amounts of the sun's energy from the tropics of the equator toward the poles. All these mechanisms, in a manner unexplained fully so far, are somehow connected to the fluctuations in the concentration of carbon dioxide in the atmosphere. It is believed that CO_2 is one of those important elements directly deciding whether we have glacial periods (or ice ages) or a warmer period, like today, called an interglacial period.

Hence many researchers compare the Artic today to the planet's gigantic air conditioner. It is the Arctic's ice cap that reflects most of the solar energy back to space. On the other hand, the dark surfaces of oceans absorb almost all heat (approximately 90 %). This is the source of the so-called climate feedback which accelerates warming: the less ice, the warmer it gets, and if less ice, it gets even warmer.

It should also be remembered that the inclination of the Earth's equator with respect to its orbit's surface makes the Arctic a key factor in the global climate changes. Among others, it is those variations in the tilt of the Earth's axis that control the timing of glaciations, the beginning and the end of the ice ages. During the summertime, the North Pole is facing into the Sun at a more direct angle and the High North begins to receive more of the sun's light. Then, the snow and ice cover shrinks. Instead of white snow which reflects back 90 % of solar radiation, the melting reveals the land and ocean surfaces which are much darker thus absorbing almost all of the sun's heat that reaches the Earth. The Arctic loses its whiteness and is heating up thus accelerating warming on a global scale.[28]

Warming of the Arctic creates new opportunities, but it also generates new challenges to be faced by decision makers and inhabitants of those human-unfriendly regions. Regardless whether its background is natural or artificial, and if the changes are permanent or only temporary, it is worth-examining the implications resulting from them as they became the foundation on which the current politics builds the future for the countries of that region.

(Footnote 27 continued)

to disruption of natural global variations of the climate by industrial development and the emission of greenhouse gases into the atmosphere. See also Ulanowski (2013a).

[28]More on the subject in Ulanowski, T. Światło wraca do Arktyki. Retrieved January 22, 2013 from http://wyborcza.pl/1,75476,13271665,Swiatlo_wraca_do_Arktyki.html#ixzz2IgaYKxPU,22.01.2013.

3.4 The Consequences of Climate Changes

In addition to the ascension of India and China to the world political stage, climate change will be the dominating subject of the twenty-first century. Both aspects are closely related. As the prognoses show, the population of India is expected to grow by 750 million by 2050 and if China's CO_2 emissions increase as forecast by 3.3 % per annum up to a total of more than 11 billion tons per annum by 2030, it quickly becomes obvious that no further political or military decisions can be made without taking these factors into consideration. "Both the Pacific and the Indian Ocean will also co-determine the future of the United States and of Europe because climate change is egalitarian: everyone is impacted in one way or another. Perhaps the end of history in reality will be the end of the boundless availability of resources, and the ensuing crises" (Werz 2008, p. 3). One of the consequences of climate change is the dearth or excess of water. Both do not only present imminent danger to many human beings but also present a major threat to the global balance. But the topic of deliberations is not disaster scenarios but the medium-term strategic changes caused by global warming. According to the currently accepted assumptions, they may lead to even greater upsets and shifts than the massive humanitarian crises to be expected in the decades to come. Anthony Giddens[29] states that "climate change is now a mainstream political issue" based on a scientific foundation. Although we have not treated it as such so far, but only because we had never faced a political challenge of this magnitude. "However, as yet there is no substantive framework for policy which offers coherence and consistency as to how national governments should cope with the long-term political challenges of climate change" (Giddens 2009).

We can say that in the current discussion on climate change three different positions can be distinguished. The first one, represented by the Intergovernmental Panel on Climate Change (IPCC) and shared by the majority of scientists, is basically a statement that climate change is a fact and it is to a large degree caused by human activities; it is happening here and now, and its consequences will be disastrous. A significant increase in temperatures will bring climatic imbalance which in conjunction with other problems (for example, economic inequality, mass migrations, and unregulated issues regarding nuclear weapons arsenal) will challenge humanity to a great degree.

The second position is the one taken by skeptics. Its representatives do not negate the fact that the climate indeed changes. They are extremely active politically, but they claim that climate warming is caused by natural processes, the debate

[29]A British sociologist, one of the most prominent theorists of the modernization and "risk society" concepts. Politically connected with the British Labour Party, Giddens developed the theory, and policies, of the Third Way adopted and closely implemented by Tony Blair's New Labour. His latest book is titled *The Politics of Climate Change*.

on climate changes is overblown, the risks they are greatly exaggerated, and human influence on climate warming is only marginal.[30]

The third position could be called a radical one as in the opinion of its representatives we do not appreciate the seriousness of the problem, and the consequences of climate change will be much graver that prognosticated by the models presented in the reports by IPCC. "Global warming will happen much quicker than anticipated. To put it vividly: for the radicals, the Earth is like a wild beast which we unnecessarily try to rouse, and whose reaction may be disastrous for us" (Giddens 2009).

In view of the above, should we trust the moderate assessments or the radical prognoses, especially when considering that we have serious gaps in our knowledge? We take attitudes not on the basis of conclusive data but on risk assessment, and we make choices on the basis of probability. We live in the environment which lacks balance. The future does not seem to be bright, but life still goes on in its ordinary rhythm. On the one hand, we allegedly face an alarming future while on the other we live regular lives, but those two realities do not basically meet. How is it possible that there is such discrepancy between our ordinary life and that of the future generations? This great and completely incomprehensible paradox springs from the fact that people are not going to take climate changes seriously until they themselves are affected by them. And then, by definition, it might be too late to stop or reverse the effects. It is then certain that as regards climate change, the strategy of wait-and-see is absolutely unacceptable.

The above statement does not, however, dismiss the basic question: Is the climatic bomb really ticking in the High North? The research shows that further warming, despite different projections of its scale, will bring further melting.

This will bring, among others, coastal erosion and land subsidence (land sinking, ocean moving inland, coastal retreating), warming-driven drying of the Arctic areas altering plant vegetation and the life of animals and humans. The Arctic's greenness absorbs more solar radiation and protects frozen layers from overheating, and the disappearance of it will accelerate the melting even more.

A warmer Arctic Ocean means a reduced ice sea cover and that reduction causes the warming of the northern tips of America, Asia, and Europe. The result is further thawing[31] of the permafrost (it covers most of the surface of Alaska and Canada, and two thirds of Siberia, on some 19 million km^2). It is now doubtful whether we should still call it "**perma**frost" since in the last one hundred years its extent has decreased by 10 %, which means by over 1.5 million km^2. Softening of permafrost, creation of lakes, ground collapse as well as collapsing of houses built on permafrost are certainly the changes caused by global warming.

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[30]The former President of the Czech Republic, Vaclav Klaus, is undoubtedly the best known skeptic. In Great Britain, this trend is represented by the former Chancellor of the Exchequer, Nigel Lawson, author of the book titled *An Appeal to Reason: A Cool Look at Global Warming*.

[31]As the research of D. Lawrence from the American National Center for Atmospheric Research (NCAR) in Boulder shows, warming signal of the Arctic Ocean penetrates south up to 1500 km inland; more on the subject at http://nside.org/frozanground. Retrieved May 10, 2011.

It has been known for many years that there exist vast amounts of organic carbon stock in the High North. The permafrost in Siberia, Canada, and Alaska, only in the top 3 m of its depth, holds as much as 1 thousand billion tons of carbon[32] which equals human produced carbon dioxide emissions in nearly a century.

A few times that amount of deposits of organic carbon lies beneath the seafloor of the Arctic seas. In a low-temperature and high-pressure condition, so-called methane hydrates or clathrates form.[33] Though they look like ice, the methane in ice form is flammable.[34]

Still, researchers are quite worried that those deposits may become more active in the warming Arctic where there is deeper thawing of permafrost in the summer and clathrate-derived methane is being released.[35] There is still a limited scientific understanding of these processes. "Some scientists estimate that the amounts are indeed significant for the climate: up to 1000 billion tons of methane in the form of clathrates accumulated below the seabed and more than 200 billion tons of methane from permafrost thaw in two hundred years. This could increase the average temperature on earth even by a few Celsius degrees" (Piskozub 2013).

This leads to a conclusion that the High North, and the Arctic in particular, is a perfect testing ground for examining in what way global warming influences the biosphere. Processes related to climate changes occur here much faster and are clearly visible. In addition, the Arctic is the global "barometer" in terms of climate change trends and effects, and long-range transmission of air pollutants. The Arctic Monitoring and Assessment Programme (AMAP) has over the past two years presented several high-level reports that document the trends and effects of climate change and pollution both on local and regional scales within the Arctic, as well as how feedback from the Arctic may affect global systems.

The coordination of Arctic monitoring and research activities of AMAP (to a large degree based on national programs) was to obtain necessary data to assess various vital issues including:

- spatial trends in levels of contaminants,
- temporal trends in levels of contaminants,

[32]In turn, P. Siergiej writes: "According to researchers, the permafrost holds as much as 1,672 billion metric tons of organic carbon" See Zmarzlina wcale nie taka wieczna. *Gazeta Wyborcza,* December 07, 2011.

[33]Methane hydrates, or clathrates, a crystal structure, are a type of frozen "cage" of molecules of methane and water. Methane ice is white in color, and it looks much like everyday ice or snow. More on the subject in: Arktyka się kurczy w oczach. Złowrogie zjawisko, które nie pozostawia nam nadziei. Retrieved November 15, 2012 from niewiarygodne.pl, October 31, 2012.

[34]Methane easily ignites and burns, and it is not unlike burning fuel in a camp stove. The Japanese were the first ones to have extracted gas from offshore hydrate deposits 300 m below the seabed. The world's first offshore production test field is located 50 miles south of central Japan. The stores of offshore methane clathrates around Japan are sufficient to supply more than a decade of Japan's gas consumption. See Ulanowski (2013b).

[35]Methane is the second most important anthropogenic greenhouse gas. The concentration of methane in the atmosphere has more than doubled since preindustrial times.

- biological effects of contaminants and associated trends,
- climate change,
- effects of climate change,
- human and ecosystem health effects,
- combined effects of contaminants, climate change and other stressors.

During the years 2009–2011, AMAP delivered the following reports:

- Climate Change and the Cryosphere: Snow, Water, Ice and Permafrost in the Arctic (SWIPA)[36]—comprises the full scientific report, a layman's report including a summary for policymakers, and three films.
- AMAP assessment 2011: Mercury in the Arctic—a scientific report and layman's report.[37]
- The Impact of Black Carbon on Arctic Environment report.[38]
- The Plan for the Implementation Phase of SAON.[39]

In addition, AMAP produced and released the following reports:

- The 2009 AMAP Assessment of Persistent Organic Pollutants in the Arctic.[40]
- AMAP (2009) Assessment of Human Health in the Arctic.[41]
- AMAP (2009) Assessment of Radioactivity in the Arctic.[42]
- Oil and Gas in the Arctic: Effects and Potential Effects, Volumes 1 and 2.[43]
- The Arctic Report Card 2010.[44]
- AMAP Strategic Framework 2010.[45]

The above-listed works clearly show that the reduction in sea ice extent and thickness have stimulated human activities in the Arctic generating more interest but at the same time some anxiety about the future of many countries related to the region. On January 12, 2009, George W. Bush released a presidential directive[46] which establishes the new policy of the United States with respect to the Arctic

[36]See http://www.amap.no/swipa.

[37]See http://www.apecs.is/index.php?option=com_content&view=article&id=2613:mercury-assessment-report&catid=97:polar-news&Itemid=171.

[38]See http://saga.pmel.noaa.gov/publications/pdfs/2012/Quinn_impact_of_black_carbon.pdf.

[39]See http://www.arcticobserving.org/index.php?option=com_content&view=article&id=82&Itemid=100014.

[40]See http://www.amap.no/documents/doc/amap-assessment-2009-persistent-organic-pollutants-pops-in-the-arctic/45.

[41]See http://library.arcticportal.org/1217/.

[42]See http://library.arcticportal.org/1215/.

[43]See http://www.nmfs.noaa.gov/pr/pdfs/permits/arctic_deis_volume1.pdf.

[44]See http://www.noaanews.noaa.gov/stories2010/20101021_arcticreportcard.html.

[45]See http://www.amap.no/documents/doc/amap-strategic-framework-2010/126.

[46]On January 12, 2009, the George W. Bush Administration released a presidential directive, called National Security Presidential Directive 66/Homeland Security Presidential Directive 25 (NSPD 66/HSPD 25).

region. The Arctic sea ice cover melted to its lowest extent in 2007 which focused scientists' attention on linking the phenomenon to global climate changes and drew attention to the issue of transport, economic, and political implications of projected ice-free seasons in the Arctic within decades. (According to the prognoses of many scientists, it may happen in late summer of 2030.) It has been correctly prognosticated that shrinking of the sea ice cover may in the coming years intensify commercial shipping transport through the Arctic sea routes: Northwest Passage and the Northern Sea Route.[47] Because of that, international provisions, agreements and guidelines for ships operating in Arctic waters are being brought up to date. The changes brought by warming temperatures will probably result in increased exploration of crude oil, natural gas and minerals. In turn, the increased hydrocarbon exploration and tourism (cruise ships), heighten the risk of pollution in the Arctic. It should also be remembered that cleaning up oil spills in ice-covered waters will be more difficult than in other areas, hence the necessity of developing and implementing effective strategies in this area.

It is clearly visible today that climate change impact may be perceived as negative or positive, depending on one's interest. On the one hand, potential opportunities are likely to arise for development of tourism, fishing, and energy sector, as warmer climate will undoubtedly attract more tourists to venture north, allow for catching more species of thermophilic fish, and make the exploration of new reserves of natural gas and crude oil easier and their extraction more effective. On the hand, however, it poses a serious threat to local ecosystems vulnerable to increased human presence in the Arctic and the development of infrastructure associated with it. In this context, a substantial increase in fisheries on an industrial-scale must be noted. This calls for discussions and necessary steps to take among the Arctic nations to negotiate an agreement on efficiency, conservation and management of fish stock. The issue of fisheries alone does not exhaust the problem because overall changes in the region may adversely affect threatened and endangered species. To prove the point, under the Endangered Species Act (O'Rourke 2012), on May 15, 2008 the polar bear was listed as threatened.

There is hardly any doubt that the current changes are unprecedented and likely to have profound effects. Glacier melting and growing precipitation increase runoff of fresh water to the Arctic Ocean which substantially decreases its salinity (ACIA, Impacts, p. 997). The landscape of the High North is slowly altering, changing the unique fauna and flora of the region. The Arctic species with traits that enable them to survive in harsh climates have to retreat northwards because of a fierce competition with the better adapted, more versatile and aggressive species from the South, which poses a substantial threat to the polar and sub-polar ecosystems.

As for the world of animals, T. Ulanowski reports that researchers from France, Germany, and Spain describe in *Science*, "…the benefits of climate change enjoyed by the wandering albatross inhabiting the Southern Ocean, a famous seabird that has a record wingspan of more than 3 m. Albatrosses are highly affected by wind

[47]More on the subject in Sect. 5.3.

which allows them to negotiate long distances between breeding and foraging sites. Because of global warming, the winds have increased in intensity: they are stronger and gustier than before (they are born from differences in temperature between various regions: the larger the temperature difference, the stronger the resulting winds will be). Wandering albatrosses appear so far to have benefited from wind changes, with higher speeds allowing for more rapid travel. As a result, the chicks are more likely to survive and adult birds are larger" (Ulanowski 2012a).

On the other hand, owing to the NASA study based on a 30-year record of land surface and newly improved satellite data, an international team of scientists were able to examine the relationship between changes in surface temperature and vegetation growth from 45° north latitude to the Arctic Ocean. Results show that higher northern latitudes are getting warmer. As a result of enhanced warming, the growing season is getting longer, benefiting the southern latitudes type of plants. Since 1982, they moved as much as 400–700 km polewards (for example, Canadian and Siberian tundra, once covered with glaciers, is being displaced by tall trees and shrubs). "Climatologists prognosticate that by the end of the century, the Arctic will move climatologically as much as 20° in latitude, relative to the 1951–1980 reference period."[48]

It is perhaps worth-mentioning one more time that the Arctic natural environment and human societies are deeply affected by the impact of climate change and similarly by the global economic development. Climate change is able to alter the nature and conditions of existence in the Arctic to a much larger extent than observed at the present time.[49] This change impacts economy, health, the way of life, livelihoods and culture of the Arctic indigenous population.[50]

The spectacular examples discussed before show very clearly that changes within that sphere bring very significant consequences in the High North. Moreover, the increased activities of the states, international organizations, companies and private people make climate changes a reality in a political, economic, and social aspect. It seems to be a peculiar sort of self-fulfilling prophesy: people's activities in reaction to scientific theories make those theories real in perception regardless to what degree they actually describe reality.

Our planet is a huge and much complex system. We are only now discovering what the imbalance of one of its parts may bring. It is very difficult to even imagine

[48]See Inwazja obcych z Południa. Retrieved March 12, 2013 from http://wyborcza.pl/1,75476,13541663,Inwazja_obcych_z_Poludnia.html#ixzz2NJFH2TFp, March 11, 2013.

[49]As writes T. Ulanowski, "Climate changes already impact the Inuit inhabiting north-western Greenland. They were hunters, but now have to turn fishermen. They used to hunt on sea ice sheet, but today, instead of the previous six months, it exists for only for two coldest months in a year. So they have switched from dog sleds to boats. As reported by Grete Hovelsrud from the Norwegian Center for International Climate and Environmental Research, the disappearing sea ice in Greenland means also a more unpredictable and windy weather for the local Inuit." Czy będzie wojna o Arktykę? January 30, 2013. Retrieved February 01, 2013 from http://wyborcza.pl/1,75476,13319294,Czy_bedzie_wojna_o_Arktyke_.html#ixzz2Jeu8GIDQ.

[50]More on the subject in: *Arctic Social Indicators—a follow-up to the Arctic Human Development Report*, TemaNord 2010:519, Nordic Council of Ministers, Copenhagen 2010; see also Chap. 4.

how this may affect other connected elements. Humans upset the balance of at least one part by emitting to the atmosphere enormous amounts of greenhouse gases. Should man do nothing about it, the Earth will have to take care of it.[51] And it certainly will manage, this way or another. The point is, however, that we are unable to predict whether the chosen way will not prove disastrous for men.

People must exercise caution and prudence because of the environmental uncertainty and potentially irremediable consequences. The restraint is to protect humans and the environment from threats; in other words it is a call for preventive action which would allow avoiding possible damage before it actually happens. Therefore, it appears necessary to establish norms and directives for assessing new technologies, new forms of economic activities, and public policies, which will prove indispensable due to serious environmental threats. A report by UNESCO (2005) suggests the following definition: "When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm" (UNESCO 2005, p. 181).

The concluding words of an ACIA report may also be quoted to serve as a reminder to exercise caution for the sake of sustainable development in the Arctic as well as improving self-sufficiency: "While more studies and a better understanding of the expected changes are important, action must begin to be taken to address current and anticipated changes before the scale of changes and impacts further reduces the options available for prevention, mitigation and adaptation" (ACIA 2005, p. 1020).

According to the latest report of the Intergovernmental Panel on Climate Change released in September 2013 in Stockholm,[52] scientists are gradually more convinced by the evidence that human activity is responsible for global warming. Nearly two-thirds of the greenhouse gas emissions are produced by just 90 companies which are responsible for 63 % of the cumulative global emissions of industrial carbon dioxide and methane, starting from the mid-eighteenth century or the dawn of the Industrial Revolution.[53] This concerns companies extracting fossil fuels—coal, oil and gas—as well as cement manufacturers which consume large quantities of coal. Half of the 63 % of emissions was produced in the last quarter of a century when it was already known how harmful greenhouse gas is.

According to the calculations by Richard Heede, a researcher from the US, the biggest contributor to climate change was extractive industry in the former Soviet Union, responsible for nearly 9 % of greenhouse gas emissions. China's coal and

[51]More on the subject in Drabińska (2012).

[52]In spring 2014, two additional reports on climate change impact on natural environment and people, as well as on ways to combat it, are scheduled to be presented by two more working groups of the Intergovernmental Panel on Climate Change.

[53]Research on the major contributors to greenhouse gas emissions, titled Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010, *Climatic Change* (2014) 122 and 229–241 doi 10.1007/s10584-013-0986-y, January 2014, Volume 122, Issue 1–2, pp 229–241, was published by Richard Heede of Climate Accountability Institute in the US. See http://link.springer.com/article/10.1007/s10584-013-0986-y (retrieved January 05, 2014).

cement industry came second, with a similar share of overall greenhouse gas emissions. ChevronTexaco is ranked third, generating ca. 3.5 % of GHG emissions. The next are: ExxonMobil (USA), Saudi Aramco (Saudi Arabia), BP (UK), Gazprom (Russia), Royal Dutch/Shell (the Netherlands), Iranian oil and gas industries, and in tenth place the coal industry in Poland with a 1.84 % share in global greenhouse gas emissions. Ranked 86 was Polish oil and gas industry responsible for ca. 0.03 % of GHG emissions. Ahead of Poland are companies around the world, including the largest producers of fossil fuels, e.g. Russian coal mining (18th place), German RWE (28), Malaysian Petronas (36), Norwegian Statoil (40), Russian Yukos and Lukoil (48 and 42, respectively).[54]

The climate change skeptics dispute scientific research on global warming and keep reiterating that the temperature of the Earth has not increased at all. They point out that since the record hot year 1998, the mercury column has practically not changed at all. In fact, this is not entirely true. According to the measurements, in the last 15 years the average temperature has indeed remained relatively flat, nevertheless, both 2005 and 2010 were warmer than 1998, and the first decade of the 21st century was the warmest decade recorded since modern measurements began—the average global temperature was estimated to be 14.47 °C, and 0.21 °C above that of the previous decade which in turn was +0.14 °C warmer than 1981–1990. By comparison, the average temperature throughout the 20th century was 13.9 °C (data after the World Meteorological Organization—WMO).

The presentation of the above attitudes and prognoses may indeed constitute a somewhat traumatic and shocking experience for the public opinion frightened of the vision of rapid and violent climate changes. An average human being cannot possibly verify whether what is presented by scientists is true or false. We sort of take their word for it. That calls for additional cautiousness and IPCC must present much greater diligence and responsibility when preparing their reports.[55] The very assessment of climate changes is a matter too serious (concerning all of us) to be left in the hands of various lobbying groups of interest. As Prof. Ł. Turski writes: "The matter of climate change is too serious for the development of civilization in the world to subject it to politically motivated decisions resulting from politically manipulated scientific research."[56]

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[54]All data after: Heede, R. See also Dwie trzecie emisji gazów cieplarnianych na świecie jest dziełem 90 koncernów. Retrieved November 25, 2013 from http://wyborcza.pl/1,75476,15004279,Dwie_trzecie_emisji_gazow_cieplarnianych_na_swiecie.html#ixzz2leKESHVv.

[55]Prof. Z.W. Kundzewicz writes, "We need to acknowledge the errors made in the IPCC report still bearing in mind that they do not undermine the fundamental message of the extensive document, for example the enclosed syntheses. As for the revision of the Fourth Report, my position differs from the one proposed by Prof. Turski. I am of the opinion that undertaking such tremendous amount of work is not feasible but, undoubtedly, the weaknesses of the Fourth Report should serve to improve the Fifth Report. So far, the list of deficiencies found in the Fourth Report of IPCC is short and quite unconvincing." Kundzewicz, Z.W. Odpowiedź na list Turskiego (2010).

[56]Letter of Turski (2010).

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Chapter 4
Peoples of the High North

Abstract As a result of complex historical processes initiated by expansive colonization policies of European countries and the United States, indigenous people in the High North had been marginalized for centuries. Today, indigenous peoples have become a nucleus of political and social changes in the Arctic region. A perception of the region through the categories of autonomous aspirations of the local communities changes the picture of today's Arctic and makes it incredibly interesting as those trends imply a possible redefinition of the interest of several countries in the High North. In the North, in the eight Arctic countries, approximately 4 million people live. The context requires drawing attention to the problems of the people inhabiting this region in order to emphasize their ethnic and cultural diversity as well as specificity of difficult coexistence of the "old" with the "new" in a much dynamic and rapidly changing social, economic and political reality.

Keywords Ethnicity and culture · Indigenous languages · Urbanization and demographics · Varying interests · Protection of natives

When people think about the High North, and especially about its most important part which is the Arctic, currently three major elements are associated with it: **climate changes**, **wild and untamed nature**, and **oil and gas resources**. However, we should always keep in mind that the Arctic is most and above all about **human beings**.

4.1 Ethnic and Cultural Diversity in the Region

People have been living in the Arctic for thousands of years. The indigenous peoples can be listed as follows:

- in Alaska: Inuit, Yupik, Aleuts, "North American Indians";
- in Canada: Inuit, "North American Indians," Métis;
- in Finland, Norway, Sweden: Saami;

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- in Russia (from west to east): Saami, Nenets, Khanty, Selkup, Enets, Nganasan, Dolgan, Evenk, Even, Yukagir, Chukchi, Chuvan, and Siberian Yupik.[1]

The Russian North is inhabited by many ethnic groups, from almost half a million strong group of Sacha (the Sakha) to the nearly extinct Kereks (8 people officially registered in the census of 2002). In accordance with Russian legislative measures, indigenous status is tied to the condition that a people has no more than 50,000 members, maintains a traditional way of life, inhabits certain remote regions of Russia and identifies itself as a distinct ethnic community. This classification was based on the estimates by ILO (International Labour Organization)—Convention no. 169,[2] "Indigenous and Tribal Peoples' Convention"[3] (1989). Hence the Sakha and Karelians do not hold this status because of their larger populations. Other peoples inhabiting Russian North, in the number of 41, are legally recognized as "indigenous, small-numbered peoples of the North, Siberia and the Far East." At the time of the USSR, the list of "indigenous numerically small peoples" comprised 26 ethnic groups, and in the year 2000 it was complemented by the additional 14 (on the basis of the decision made by the State Duma, no. 255 of March 24, 2000). In 2005, the northern branch of the Komi people, the Izhma-Komi additionally attained the status of a 41st "small-numbered indigenous people."

Below, the list of "small-numbered indigenous people" is presented, as established by the Russian Federation Duma resolution no. 255 of March 24, 2000 (Arktyka.org).

- **Aleuts**, Koryakskiy Autonomous Okrug, Kamchatskaya Oblast,
- **Alyutors** (formerly grouped with Koryaks), Koryakskiy Autonomous Okrug,
- **Chelkans**, Republic Altay,
- **Chukchi**, Chukotskiy Autonomous Okrug, Koryakskiy Autonomous Okrug, Republic Sakha (Yakutia),
- **Chulyms**, Tomskaya Oblast, Krasnoyarskiy Kray,
- **Chuvans**, Chukotskiy Autonomous Okrug, Magadanskaya Oblast,
- **Dolgans**, Taymyrskiy Autonomous Okrug, Krasnoyarskiy Kray, Republic Sakha (Yakutia),
- **Enets**, Taymyrskiy Autonomous Okrug,
- **Eskimo**, Chukotskiy Autonomous Okrug,
- **Evenks**, Republic Sakha (Yakutia), Evenkiyskiy Autonomous Okrug, Krasnoyarskiy Kray, Khabarovskiy Kray, Amurskaya Oblast, Sakhalinskaya Oblast, Republic Buryatiya, Irkutskaya Oblast, Chitinskaya Oblast, Tomskaya Oblast, Tyumenskaya Oblast,

[1]More on the subject in *Sharing Knowledge. Workshop on Climate Change Impacts and Adaptation Strategies for Arctic Indigenous Communities*, September 20–21, 2008, Copenhagen, TemaNord 2009:521. Copenhagen: Nordic Council of Ministers.

[2]The Russian Federation has not ratified the Convention no. 169.

[3]See http://www.ilo.org/public/libdoc/ilo/2003/103B09_345_engl.pdf.

- **Evens**, Republic Sakha (Yakutia), Khabarovskiy Kray, Magadanskaya Oblast, Chukotskiy Autonomous Okrug, Koryakskiy Autonomous Okrug, Kamchatskaya Oblast,
- **Itelmens**, Koryakskiy Autonomous Okrug, Kamchatskaya Oblast,
- **Kamchadals**, Kamchatskaya Oblast, Koryakskiy Autonomous Okrug,
- **Kereks** (formerly grouped with Koryaks), Chukotskiy Autonomous Okrug,
- **Kets**, Krasnoyarskiy Kray, Chukotskiy Autonomous Okrug,
- **Khants**, Khanty-Mansiyskiy Autonomous Okrug, Yamalo-Nenetskiy Autonomous Okrug, Tyumenskaya Oblast, Tomskaya Oblast, Republic Komi,
- **Koryaks**, Koryakskiy Autonomous Okrug, Kamchatskaya Oblast, Chukotskiy Autonomous Okrug, Magadanskaya Oblast,
- **Kumandins**, Altayskiy Kray, Republic Altay, Kemerovskaya Oblast,
- **Mansi**, Khanty-Mansiyskiy Autonomous Okrug, Tyumenskaya Oblast, Sverdlovskaya Oblast, Republic Komi,
- **Nanais**, Khabarovskiy Kray, Primorskiy Kray, Sakhalinskaya Oblast,
- **Negidals**, Khabarovskiy Kray,
- **Nenets**, Yamalo-Nenetskiy Autonomous Okrug, Nenetskiy Autonomous Okrug, Arkhangelskaya Oblast, Taymyrskiy Autonomous Okrug, Khanty-Mansiyskiy Autonomous Okrug, Republic Komi,
- **Nganasans**, Taymyrskiy Autonomous Okrug, Krasnoyarskiy Kray,
- **Nivkhi**, Khabarovskiy Kray, Sakhalinskaya Oblast,
- **Orochi**, Khabarovskiy Kray,
- **Oroki**, Sakhalinskaya Oblast,
- **Saami**, Murmanskaya Oblast,
- **Selkups**, Yamalo-Nenetskiy Autonomous Okrug, Tyumenskaya Oblast, Tomskaya Oblast, Krasnoyarskiy Kray,
- **Shors**, Kemerovskaya Oblast, Republic Khakasiya, Republic Altay,
- **Soyots**, Republic Buryatiya,
- **Taz**, Primorskiy Kray,
- **Telengits**, Republic Altay,
- **Teleuts**, Kemerovskaya Oblast,
- **Tofalar**, Irkutskaya Oblast,
- **Tubalars**, Republic Altay,
- **Tuvinian-Todzhins**, Republic Tyva,
- **Udege**, Primorskiy Kray, Khabarovskiy Kray,
- **Ulchi**, Khabarovskiy Kray,
- **Veps**, Republic Kareliya, Leningradskaya Oblast,
- **Yukagirs**, Republic Sakha, Magadanskaya Oblast, Chukotskiy Autonomous Okrug.

It should be noted that approximately 50 % of all Arctic inhabitants live in Russia and the most densely populated area of the Arctic is North Western Russia, particularly around the Kola Peninsula, where almost 25 % of the Arctic population lives.

The Nordic countries comprise some 31 % of the Arctic population, while Alaska has 16 % and Canada approximately 3 %. Indigenous peoples' populations in Greenland and Canadian Nunavut have the largest proportions, while Sweden, Finland and Russia have the lowest proportion in comparison to other people inhabiting the High North. In Scandinavian countries, the settlement pattern is more dispersed, with the exception of Iceland where 62 % of the population lives in the Reykjavik-region. It is much debated to what extent Icelanders and Faroese can be considered indigenous.

The vast majority of the population in Arctic Russia lives in large population centers (Murmansk is the largest one). Similarly, Alaska is dominated by the two large settlements: Anchorage and Fairbanks. In Canada, Greenland and the Faroe Islands, there are a few large settlements but a significant part of the population continues living in settlements below 5000 inhabitants.

In the North, in the eight Arctic countries, approximately 4 million people live. The context requires drawing attention to the problems of the people inhabiting this region in order to emphasize their ethnic and cultural diversity as well as specificity of difficult coexistence of the "old" with the "new" in a much dynamic and rapidly changing social, economic and political reality.

Greenland[4] and its people may be a good illustration of the phenomenon as they have already experienced enormous changes during the past 100 years. One could even venture a statement that they have already passed the threshold of change some time ago, and this seems to be applicable to Greenland only but across the entire Arctic region. These changes may be turned into an advantage for the indigenous population by making use of the flexibility which comes with acclimatization to change, and the experience they have gained in dealing with rapid changes in their societies.[5] But there can be no positive change without social sustainability. Today, in case of Greenland's population, we may talk about the massive societal consequences that the speed of the modernization process has brought. Just 50 years ago, there were still people living in peat dwellings without running water, and today the majority of the population lives in modern accommodations.

Such a rapid pace of development has had significant consequences for Greenlandic society, and these have been both positive and negative.

It is characteristic that a significant part of the 56,000 people inhabiting Greenland live in small isolated communities in a vast Arctic region, and this affects their ability to implement social programs as it reduces their access to expertise and the possibility for the services to be delivered locally. A much broader involvement

[4]*Grønland* in old Scandinavian languages means a "green land," while the Inuit called the island *Kalaallit Nunaat* which translates into "our land".

[5]More on the subject in Maliina Abelsen, Minister for Social Affairs, Greenland, Copenhagen, May 26, 2010, titled: Arctic on the threshold of change; see http://www.norden.org/en/nordic-council-of-ministers/ministers-for-co-operation-mr-sam/the-arctic/calender/arctic-changing-realities/speeches-and-presentations/maliina-abelsen-arctic-on-the-threshold-of-change. Retrieved October 01, 2011.

of the international community is necessary. The Nordic Council initiatives already contribute significantly to in-depth analysis of the state of the Arctic region and provide a basis for constructive cooperation between member governments. In addition, Greenland has already benefitted greatly from the relations with the EU in the area of education and training but is still interested in further cooperation with additional partners.

If the Greenlandic population is to be prepared to cope with the pace of change in the Arctic region, it is important to create involvement and a common understanding of the problems they face, and that needs to be done in cooperation with the local population and the international community. In such a context, an Arctic cooperation within the ICC (Inuit Circumpolar Council) and other indigenous people's organizations is considered by the authorities.

However, Greenland, the biggest island in the world, and the issues of its people facing today's realities do not quite exhaust the problem. The people of the High North include both groups of the indigenous population and the settlers from the South. The influx of the "newcomers" is not necessarily a result of their exploring passions and the love of travel. It has often been a direct consequence of political actions undertaken by governments. "In some cases [they were] forwarded as an attempt to rid lowland society of persons who were considered unwanted. In other cases governmental motives concerned the perceived need to display 'national presence' and supremacy, thereby ensuring access to the renewable and non-renewable resources of the North. In still other cases government policy must be seen within the context of a modernization process where economic and social systems from the south were transferred to the North" (Eðvarðsson 2007, p. 27).

The peoples of the High North have managed to survive massive environmental and climactic changes by being flexible, adaptive and mobile.[6] Today, however, they have become a minority across most of the Arctic, because of a massive influx of "newcomers" (those are to some extent individuals attracted by the presumed wealth which could be gained).

The process started in the early 1900s and truly accelerated after WWII. As a result, the proportions of indigenous people to those non-indigenous in various regions of the Circumpolar North differ considerably. At present, for example, in the largest Murmansk region with some 864,607 inhabitants the population is composed entirely of non-indigenous people while in Nunavik in Canada, with 12,861 inhabitants, over 90 % are indigenous people.

But it is in that frosty northern land of severe polar and subpolar climate with a cold and short summer and very long and freezing winter that the peoples of fascinating culture have been living for millennia. The most common term used to denote them is Eskimo.[7] It is also without doubt that these natural conditions have

[6]More on the subject in Adaptation of Arctic Communities to Climate Change. Possible themes for cooperation. The Top-level Research Initiative—A major Nordic venture for climate, energy and the environment, see www.toplevelresearch.org for more information.

[7]Extensive body of information regarding culture, family customs and social behavior of the Eskimo is published in a book by Adamus (1989).

led to an isolation of separate groups of them. During ages of migration, they managed to occupy the area of approximately 5 million km^2 although their settlements were often separated by long distances. Sporadic contact, even during the Arctic summer, made for example the people of eastern Arctic unaware that they had distant "relatives" in Alaska. Isolation has also brought a great linguistic diversification among separate ethnic groups. Nevertheless, it is the languages and their common root that uncover the secrets of origin of the peoples of the Arctic North.

Although their beliefs were little understood[8] and their customs hardly accepted, they were still admired for being able to survive in such extremely difficult conditions. For years various governments and missionaries have tried to change their life.[9] But the Eskimo have managed to preserve their own past and today consider themselves one nation.

Eskimo never had any supra-local organization or an institution of one leader for all. "Man's position depended on his achievements, practical knowledge and ability of skillful coexistence within a group. Naturally, since elderly people had more experience, they were respected most in the community. Members of local communities were linked by strong family and affiliation bonds. The latter related to adopted persons, namesakes, companions, trade partners, and affiliations through contracting a marriage […] Social organization and moral norms secured the life of women and children" (Walendziak 2008, pp. 10–11).

The Inuit Circumpolar Conference (ICC) held its first assembly in Barrow, Alaska, in June 1977, and the delegates of all Eskimo groups agreed to officially use the joint name of **Inuit**, but the local names were also decided to be binding. A particularly important event for this community was however the 11th General Assembly of the Inuit of Alaska, Canada, Greenland, and Chukotka, on the occasion of the 30th anniversary of the founding of the Inuit Circumpolar Council (ICC), held in Nuuk, Greenland, between June 28 and July 2, 2010, whose keynote was *Inoqatigiinneq*—Sharing Life. The main themes of the Assembly, following the work by W. Rybicki,[10] were as follows:

- **Remembering** that the respectful sharing of resources, culture, and life itself with others is a fundamental principle of being Inuit, and is the fabric that holds us together as one people across four countries;
- **Remembering** that the interim ICC executive committee members committed at that time to formulating the vision and drafting the ICC charter and by-laws, with the aim of formally adopting them;

[8]For example, the Inuit had no established sacred spots or any permanent religious places, and they never created any images of supernatural beings. Eskimo spirit never demanded to be worshipped in structures especially erected for this purpose.

[9]In the 20th century, Protestant missionaries and various organizations launched very active campaigns to change the mode of life and culture of the Eskimo. In the later part of the previous century, their culture practically disappeared and it was replaced by new problems: unemployment, crime, alcoholism, and drug abuse.

[10]After Rybicki and Deklaracja Nuuk (2010). On the basis of www.inuit.org, www.itk.ca.

- **Looking Back** thirty years at the formal inauguration of ICC, which happened here in Nuuk in 1980;
- **Understanding** the unique status and reputation of ICC as an Indigenous Peoples' Organization (IPO) at home and abroad;
- **Celebrating** the historic adoption by the United Nations General Assembly in 2007 of the UN Declaration on the Rights of Indigenous Peoples which, among other things, affirms that all peoples contribute to the diversity and richness of civilizations and cultures, that indigenous peoples should be free from discrimination, have rights to self-determination, and are equal to all other peoples, while recognizing their right to be different and to be respected as such;
- **Recognizing** that universal human rights instruments including the rights of indigenous peoples worldwide, including those of Inuit are still not fully acknowledged nor implemented and Inuit must continue to work alongside others to achieve the goal of full recognition of Inuit rights;
- **Noting** the recent increased developments at the international level affecting Inuit, and the rapid and exponential growth of interest and external activity in the Arctic by powerful states, industry, researchers, and special interests over the past four years will undoubtedly continue and will require considerable attention and vigilance from ICC into the next four years;
- **Recognizing** the disaster unfolding from off-shore drilling in the Gulf of Mexico and further recognizing the fragility of the Arctic environment and how any significant oil spill would be catastrophic for Inuit and finally that resource extraction industries are increasingly aiming to exploit offshore and onshore resource development;
- **Observing** Arctic change, including the melting of ice in the Inuit homeland, with significant concern and measured fear and **Knowing** that Inuit have a history of finding resources within their communities and elsewhere to adapt and meet challenges, created by change, successfully;
- **Observing** that influential states, industry, and agencies are increasingly interested in the utilization of the Arctic marine environment and its associated resources;
- **Recognizing** that Inuit, as a marine indigenous people living in vast areas of the Arctic, including Arctic coasts, have rights associated with managing the Arctic marine environment for present and future generations, with marine stewardship responsibilities for all humankind;
- **Recalling** the launch of the Circumpolar Inuit Declaration on Sovereignty in the Arctic in April 2009, which Inuit leaders began to develop at the Inuit Leaders' Summit held in Kuujjuaq in October 2008, and which in a spirit of collaboration and respect describes how the sovereign rights of Inuit are to be implemented;
- **Reminding** ourselves that Inuit have generated much success by working collaboratively with others, including those with knowledge systems different from ours, and by contributing to the work of international and Arctic-wide research, as well as bodies such as the United Nations and the Arctic Council, while at the same time remaining true to our own knowledge systems and promoting our rights;

- **Noting** that in spite of significantly increased activity in the Arctic, for Inuit there remains a woeful lack of north-to-north communications infrastructure and transportation connections between Inuit communities;
- **Mindful** that challenges identified by Inuit who gathered together in the early ICC General Assemblies continue to have political, economic, environmental, social, and cultural dimensions and that ICC was mandated to put Inuit issues, concerns, and rights at the centre of Arctic policy and decision making.[11]

Delegates also decided to direct ICC to continue to participate in international bodies such as the Convention on the International Trade of Endangered Species (CITES), the World Conservation Union (IUCN), the International Whaling Commission (IWC), the North Atlantic Marine Mammal Commission (NAMMCO), and the World Trade Organization (WTO) to defend and promote the right of the Inuit to harvest marine mammals and to trade their product on a sustainable basis.

The European part of the Arctic is inhabited mostly by Saami, and in the east by Nenets, Komi peoples, Vepsians, Karelians (also Karels), Evenks, and smaller indigenous groups.

Saami are indigenous people living in Fennoscandia, in the north of Finland, Norway, Sweden, and the Kola Peninsula in north-western Russia. Traditionally, Saami have depended on utilizing all available living resources. Their most recognized means of subsistence is the economy based on reindeer husbandry which derives from their unique knowledge developed on these lands for millennia.

There is no doubt that climate change will seriously affect the reindeer husbandry for the Saami. As proved by history, they have been able to deal with rapid changes in an unpredictable and rapidly changing environment. Their past responses to unpredictability and variability may serve as an example for a successful management of permanent climate changes. In order to maximize the results of husbandry, one has to be able to adapt to the conditions. Currently, four countries are examples of Saami pastoralism—Norway, Sweden, Finland and Russia—and even within those four, the Saami present a surprising variety in their responses and approaches to governance.

The Saami have practiced reindeer husbandry in Scandinavia and Russia for several centuries. The border changes in the region, for example the border treaty between Norway and Sweden in 1751, and the border closure with Finland in 1852, were great disruptions and they had a tremendous impact on pastoralism. Over time, reindeer husbandry has developed in a different way in each of those countries owing to territorial claims, sovereignty and the governance systems.[12]

Because of several restrictions and limitations, it is perhaps interesting to call on the example of Norway where Saami practiced reindeer husbandry in a traditional way, particularly in the region (*fylke*) of Finnmark, the northern-most district of the

[11]In fact, the selection constitutes main points of the Declaration. For more on the subject see appendix and http://inuit.org/en/about-icc/icc-declarations/nuuk-declaration-2010.html.

[12]See Jernsletten and Klokov (2002).

country. Finnmark is known to have had the most extreme climatic conditions. It is also a place of the densest concentration of both reindeer and reindeer pastoralists.[13]

The state of Norway has assiduously pursued a policy of assimilation, called "Norwegianization," towards the indigenous Saami population for most of the last two centuries. Following the large-scale Saami ethnopolitical mobilization during the second half of the 20th century, recently "Norwegianization" has been substituted by a more progressive attitude towards indigenous issues. Today, Norway is a signatory of ILO (International Labour Organization) Convention 169 concerning indigenous and tribal peoples. In some aspects, e.g. land rights, the situation of the Norwegian Saami is much better than that in the neighboring countries. But the situation is not quite favorable, especially as regards reindeer pastoralism. The pretense of "scientific rationalization" and "modernization" brought the reform and restructuring of reindeer husbandry as a sector. This in turn resulted in a near or total disappearance of any Saami legal terms, together with the introduction of terminology from traditional Norwegian non-Saami agriculture, quite foreign to the issues. The dramatic changes introduced by the Norwegian administrations over the last two generations caused very significant and rather irreversible changes in the practice of reindeer herding. These are simultaneously magnified by the occurring changes in lifestyle and patterns of consumption, the growing dependence on cash, mechanization of herding, and new demographic patterns. Moreover, there is also growing tourism and other forms of developing infrastructure, like road-building, windmill parks, nature reserves, and hydroelectric complexes. Hence the traditional forms of reindeer pastoralism look nearly impossible to maintain. Drastic and permanent climate change in the near future will possibly cause the greatest impact. Hence the question of a sheer survival of the practice, the culture and of the reindeer herding community becomes pressing.

The Norwegian governance system presents a case of very strong bureaucratic centralization—more so, perhaps, than in other Scandinavian countries. To supervise less than 600 individual herding units, the Reindeer Herding Administration employs more than 50 people (Lie and Nygaard 2008). In addition, there are also people employed in the Ministry of Agriculture. These are great numbers and such an extensive administrative structure produces a constant flow of highly detailed and frequently changing regulations. On the one hand, such a bureaucratization provides social and economic benefits for herders. The administration provides support or subsidies in bad years, and lessens some financial impact of climatic damage. The feeling of unpredictability is evident in a remark made by one of the herders: "Before, we were used to working with an unpredictable nature. Now we also have to work with an unpredictable government administration" (Reinert et al. 2010, p. 198). There is perhaps some detectable movement as regards gaining more local autonomy. This is exemplified by the introduction of hygiene and food safety regulations to facilitate the establishment of mobile slaughterhouses for reindeer

[13]See Reindriftsforvaltningen (2012).

(Reinert 2007). Many of the structural changes, that have taken place in the herding industry, are complex and will be extremely difficult to reverse.[14] A significant step towards re-establishing flexibility and local forms of organization would be downscaling and decentralizing the bureaucratic structure, and granting a greater degree of flexibility and control to the herders and the industry itself, for example in the regulation of herding licenses.

The coping mechanisms adapted before in the case of dramatic climate changes and its results could be applied to understand and adjust to the climatic change of today. Adaptive responses to dramatic environmental change are often encoded in traditional knowledge of the indigenous people. In Norway, very "bad years" have occurred in living memory, and there are reindeer herders today, who have lived through severe but temporary climatic turns. Their knowledge and experience might be a crucial resource in responding to future challenges. Today, when developing strategies for coping with climate change, we must draw on this knowledge and experience, in order to understand and strengthen the highly efficient coping mechanisms that have made survival already possible for centuries.[15]

The first decade of the 21st century marks the period of ethnopolitics and Saami mobilization to promote a more progressive attitude towards indigenous people. The 19th Saami Conference, held in Rovaniemi, Finland—October 29–31, 2008—welcomed the consensus proposal on the Draft Nordic Saami Convention, submitted by the group of experts appointed by the governments and the Saami parliaments in Finland, Norway and Sweden in November 2005. In addition, it expressed its great appreciation to the experts for preparing the Saami Convention text, based on the principles of international law, and recognized e.g. in the recently adopted UN Declaration on the Rights of Indigenous Peoples.[16]

[14]A very interesting depiction of these problems is presented by H. Reinert, S. Mathiesen, E. Reinert, *Climate Change and Pastoral Flexibility*, pp. 189–204.

[15]The very same goal led the researchers engaged in The International Polar Year—IPY 2007–2008 which was the largest ever undertaken research program in the polar regions of the Earth, following the footsteps of the First and Second International Polar Years (respectively in 1881–1883 and 1932–1933), and the International Geophysical Year 1957–1958. An estimated 50,000 researchers, local observers, educators, students and support personnel from over 60 countries participated in more than 228 international IPY projects (170 in scientific research; 57 in Education, Outreach and Science Dissemination and one in Data Management) related to national efforts and endeavors. IPY has generated intensive research and observation in the Arctic and the Antarctic within the period of two years (March 1, 2007–March 1, 2009), including many projects surpassing that window of time. IPY invigorated polar science, led to an unprecedented level of action, and attracted global attention to the polar regions at a critical moment in the changing relation between humanity and the environment. More on the subject at www.arcticportal.org/ipy-joint-committe, http://www.arcticportal.org/ipy-joint-committe, http://www.icsu.org/, http://www.wmo.int/pages/mediacentre/press_releases/pr_911_en.html.

[16]For the text of UN Declaration on the Rights of Indigenous Peoples, see http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf.

The Saami Conference places great importance on the two rationales behind the Saami Convention:

1. To affirm the Saami's most basic rights as a people indigenous to its traditional territory, and
2. To mitigate to the largest extent possible the injuries caused to the Saami people by the fact that national borders today divide the traditional homeland into four countries.

The Saami Convention[17] provides minimum standards that must be respected if the Saami people are to be able to preserve and develop its collective identity as a distinct people, including maintaining it across the national borders. By ratifying the Saami Convention, the states will then fulfill its obligation to take effective measures to facilitate the Saami people's right to maintain and develop relations and cooperation across national borders, as proclaimed by Article 36 of the UN Declaration on the Rights of Indigenous Peoples.

All the Nordic states actively supported the adoption of the Declaration, and have committed to respect the same. For these reasons, the states are obliged to ratify the Saami Convention without further delay.

The above is what the legal writs and declarations say. However, due to discrepancies between the formal and legal obligations and real practice, the Saami at their 19th Conference voted the Resolution on the Draft Nordic Saami Convention which contains, among others, the following:

- "The Saami Conference is profoundly concerned with Finland's, Norway's and Sweden's incapacity to take adequate action on the Draft Saami Convention, even though three years have passed since its tabling;
- The Saami Conference is particularly troubled with Finland's recent announcement that it intends to withdraw from the process aiming to facilitate a ratification of the Saami Convention.
- The Saami Conference calls on Finland to remain in the Saami Convention process, and urges the three governments and Saami parliaments to without further delay constitute a negotiation group that facilitates a speedy adoption of the Saami Convention" (Resolution).

A problem in itself is the situation of Saami in the Russian Federation. In the Soviet times, most of the traditional Saami areas were appropriated by the authorities for exploitation of deposits and natural resources, and the indigenous people have been simply relocated. Today, most of the altogether 2000 Saami persons in the Russian Federation live in Murmansk, Lovozero, Revda, Monchegorsk, and Olenegorsk. Some also inhabit the smaller towns of Murmashii, Shongui, Verkhnetulomsk and Loparskaya between Murmansk and Lovozero, as well as the villages in the tundra, such as Krasnoschelie, Sosnovka and Kanevka.

[17]For the text of UN Declaration on the Rights of Indigenous Peoples, see http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf.

It is hardly surprising then that Magne Ove Varsi, when appearing at Conference, 4–5 February 2010, devoted his speech to two basic issues: Indigenous Peoples' Right to Participate in Decision-Making and Indigenous Peoples' Right to Development. Among others, he emphasized the following: "I would just like to clarify that I am not proposing that there be no extractive industrial activities in indigenous lands and territories, nor would I be in a position to make any such suggestion on behalf of indigenous peoples, as this is something the indigenous peoples concerned have to decide on themselves. This is an inherent part of their right to self-determination. My point is simply that extractive industrial activities should *not* take place in indigenous lands and territories *without their prior, free and informed consent*. Moreover, the indigenous peoples have the right to a *fair share of the benefits* from such activities in their lands and territories."[18]

Another Saami conference took place in Murmansk between 2 and 4 of May 2013, at which Saami people from Norway, Sweden, Finland, and Russia discussed Saami culture vis-à-vis increased industrial development. A particular emphasis was put on preserving identity and culture on the traditional lands of Saami, confronted by the pressure of developing industry and exploitation of non-renewable resources. A series of significant issues were discussed there in a very open way, among them: What kind of choices do the Saami people have? How should the Saami culture look like in the year 2053, i.e. 100 years after the first Saami conference? What challenges can be foreseen in the future for the Saami traditional livelihood, culture and society? What are the visions for the future for the Saami people? and where will Saami be 2053, i.e. 40 years after the Conference in Murmansk?

The two Saami conferences are discussed here for a good reason, as the Saami Conference is the highest decision-making body of the Saami Council (Samerådet, Sámiráđđi, Союз Саммов, Saamelaisneuvosto). It is a voluntary and independent union (a federation), acting as a joint cooperative body of the Saami organizations within the fields of cultural policies and general social policies. The Council's scope of work is very broad, both in terms of the Saami people as well as internationally. Its political activities regarding average people and the annually distributed grants for culture show that a majority of the Saami people endeavor for their voice to be heard (Samerådet). The Council is a voluntary Saami organization (a non-governmental organization), with Saami member organizations in Finland, Russia, Norway and Sweden. It was founded during the 2nd Saami Conference held in Kárášjohka (Rarasjok), Norway, on August 18, 1956. The Saami Council consists of 15 representatives; 5 from Norway, 4 each from Finland and Sweden, and 2 from Russia. The main objectives of the Council are to protect Saami interests as a nation and to strengthen cross-border Saami solidarity. Another objective is to attain in the future a wider recognition for the Saami as a nation and to maintain the

[18]For the full text of the speech, see http://www.barentsindigenous.org/co-existence-in-the-arctic-010.147246.en.html (retrieved November 25, 2012).

economic, social, religious and cultural rights of the Saami in the legislation of the four states and the bodies representing the Saami people.

The Saami Council participates in international activities concerning the rights of indigenous people, human rights, Arctic regions, and environmental issues. In order to realize its objectives, the Saami Council renders opinions and makes proposals on questions concerning Saami people's rights, language and culture, and economic issues concerning the Saami. As the Council functions as a platform of cooperation for Saami organizations in Finland, Sweden, Russia, and Norway, its special kind of activity are actions of a cross-border nature; for example, it plays a uniquely significant role on the Kola Peninsula (*Guoládatnjárga* in the Saami language) where historically the Saami situation is more difficult than ever since international exploration companies took over the areas traditionally occupied only by indigenous people. Moreover, as long as there exists no individual Saami representation being strictly Russian, the Council acts on behalf of "the Saami world" and in that capacity is irreplaceable.

The Saami Council represents its people through several organizations. At the 19th Conference in 2008, Saami admitted a new member to the Council: Renägarföbundet (the Union of Reindeer Herders-Owners).

Members of the Saami Council are today as follows:

- In Norway: Norgga Boazosapmelaččaid Riikkasearvi/Norske reindriftsamers landsforbund (NBR/NRL)—Saami Reindeer Herders' Association of Norway, Norgga Samiid Riikkasearvi/Norske samers riksforbund (NSR) och Samiiid Albmotlihttu/Samenes folkeforbund (SAL/SFF)—People's Federation of the Saami,
- In Finland: Suoma Samiid Guovddašsearvi (SSG)—Saami Association of Finland,
- In Sweden: Samiid Riikkasearvi/Samernas riksforbund (SSR)—Saami Association of Sweden and Riksorganisationen Same Atnam (RSA)—The National Association of Saamiland, and a new member Boazoeaiggadiid oktavuohta/Renagarforbundet (BEO/RAF),
- In Russia: Sameorganisationen i Murmansk-omradet (OOSMO)—Saami Association of Murmansk Region, and Guoladaga Sami Searvi (GSS)—Saami Association of Kola Peninsula.

The conferences take place every fourth year, and the latest was held in Murmansk (it was a 20th consecutive one).

4.2 Indigenous Languages of the Arctic

If we are to discuss ethnic and cultural otherness, language cannot be possibly omitted. Language does not only communicate but also defines culture, nature, history, humanity, and the ancestry. Indigenous languages of the Arctic have been born and developed in close proximity with the environment. They constitute a very

important source of information in which a rich knowledge of mutual interactions between man and nature is encoded. As Barry (2010, p. 36) said: "If a language is lost, a world is lost."

This extensive knowledge and interrelationships are expressed in the Arctic song, practices of subsistence, and modes of cultural manifestations, but particularly in assigning proper names to various places in the Arctic. Those names reflect a practical ability of survival of the local peoples, their legends and stories about human settlements, migration routes of animals, and links to the sacred realms of the indigenous inhabitants of the North.

The Greenlandic language called *kalaallisut* is spoken by some 50 thousand inhabitants of Greenland and ca. 7 thousand Greenlanders living in Denmark. Although it is commonly assumed that all the Inuit of the world use the same language, in some cases its dialects are much different from one another. The names attributed to those dialects are most of the time quite symbolic and serve rather the linguists than the people who actually use them. Together with the Aleutian, Inuit dialects belong to the Inuit-Aleut family of languages. On Greenland, there exist three major dialects (West, East, and North), and the East one is spoken by some 3000 people, while the North only by 800. The dialects are so different that if not for the West Greenlandic and Danish taught at schools, Greenlanders from various parts of the island would have difficulties in communicating.

The afore-mentioned issues are analyzed in detail by Tom Barry in his work titled Linguistic Diversity, Ecosystem Services (2010). The author talks about 90 Arctic languages which he groups into six different families of languages. T. Barry writes: "It was possible to consider changes in populations for 47 languages. Of these, 36 had populations of fewer than 10,000, and 18 had population levels of 1000 or less. Nineteen populations experienced decreases in size ranging from 5–50 %, the majority of these being located in the Russian Federation. The indigenous population which experienced the greatest increase in net population were the Inuit" (Barry 2010, p. 100). Since the 19th century, indigenous languages in the Arctic have been subject to pressures and challenges from the colonial powers active in the Arctic. In the early 20th century, that included processes which did not incorporate local languages into state educational and social systems. Often times, the result was a weakening of the bond with the language, and later on with the culture and tradition.

The state of four Saami languages, Akkala, Ter, Skolt and Kildin, that have been spoken among the Saami in the Russian Federation, is as follows: Akkala seems to be extinct as a language; fewer than 20 persons understand or speak Ter Saami; Skolt Saami is spoken by less than 20 individuals, and Kildin Saami is spoken by some 300–700 people (barentsindigenous).

Data gathering concerning languages of indigenous people in the Arctic is a very difficult task since they change not only in terms of the population but also in coverage and extent of the usage of a given language. Only recently has consistent collection of data been introduced. Hence no wonder that even a comparison of national statistics in a chronological manner proves to be difficult. In practice, it is usually a combination of official statistics and mere estimates.

Therefore, any data concerning the languages of Saami, Aleut, and Inuit must be approached with a dose of caution. Such an attitude, however, undoubtedly stimulates the awareness of possible changes to be discovered and encourages further research (Barry 2010, p. 100).

Today, the dominating tongues in the European Arctic are Russian, English, and the Scandinavian languages. Most of the Arctic indigenous languages suffered substantial losses in terms of the absolute number of speakers and users. Simultaneously, in the last few decades some indigenous languages have gained a better status and become a subject of sustained effort to revitalize them, as well as have been recognized as a very significant tool of preserving cultural heritage. Some have also gained status of official languages, for example in Greenland, in Nunavut, and on the Northwest Territories of Canada.

Since Arctic languages face such an uncertain future, it is highly advisable to support the appeals and join the efforts maximizing the growth of our understanding of the culture and tradition embodied in these languages.

4.3 The Phenomenon of Indigenous People and the Current Changes and Trends

At this juncture and in view of the described challenges, it is perhaps necessary to ask how it is at all possible that in spite of sparse population, incredible distances and extreme climate conditions various Arctic indigenous cultures have survived for many centuries. This unique phenomenon is undoubtedly due to production systems of the local people in the extremely difficult, changeable and unpredictable climate, which have been based on the strategy of minimum risk taking, for example crop diversification, skilled and flexible utilization of existing ecological and climatic niches. Those climate challenges, faced by reindeer herders and hunters, gave birth to the necessity of adaptation.

An equally important issue in the North is today the state of health of its inhabitants and the protection of health. According to the Report of the Dickey Center for International Understanding and The University of the Arctic Institute for Applied Circumpolar Policy (IACP),[19] the rapidly changing health conditions in the Arctic, caused partially by the changing climate and globalization, call for an immediate new approach in research and delivery of services to improve the state of health and conditions of life in the Arctic communities.

[19]The University of the Arctic Institute for Applied Circumpolar Policy (IACP) is a collaboration between the Dartmouth College, the University of Alaska Fairbanks, and the University of the Arctic.

According to the assessment made by twenty seven experts,[20] from North Canada to the Russian Arctic, all communities face different health-related challenges, varying from new insects moving north, water borne diseases (due to changes in temperature), environment pollutants (such as, e.g. mercury), growth in susceptibility to heart diseases and to obesity as a result of abandoning the traditional diets, to very serious problems connected with a possibility of rendering health services on such a spacious territory. "The climate and ecosystems of the Arctic are changing rapidly and we can see real impacts on the health of people and their communities. Knowing how to respond is difficult," said Ross Virginia, Director of the Institute of Arctic Studies at the Dickey Center. "The Dartmouth conference assembled an expert group from many Arctic nations to collect the latest ideas and build what we have called a new paradigm, or framework, to help health experts, communities, and policymakers focus on the most critical issues" (IACP).

The Report's recommendations include assurances that the results of this research will bring real benefits for the community as well as individuals. This new framework should incorporate the local traditional knowledge to health practices, actively involve local communities into making health examinations a priority, and focus on holistic practices that protect and sustain people's health.

The current pace of global changes has already made a dramatic and perhaps even a decisive impact on the High North, and particularly the Arctic. In order to comprehend the current and likely future scenarios in the region, it is necessary to define a set of preconditions connected to and impactful on the already happening changes and tendencies.

Some of these developments are so powerful that following the authors of the Report "Megatrends" (Megatrends 2012), they truly deserve the label. It is quite understandable if we realize that the trends have the potential to transform societies across social categories and at all levels, from individuals and local-level players to global structures, and eventually to change our ways of living and thinking.

The Report identifies nine of such megatrends:

- Increased urbanization—a global trend also including the Arctic;
- Demographic challenges—the old stay while the young leave;
- Continued dependency on transfers and the exploitation of natural resources will continue to dominate the Arctic economies;
- Continued pollution and ongoing climate change will have a significant impact on the nature and environment of the Arctic;
- The Arctic needs to generate more Human Capital by investing more in its people;

[20]This group also undertook developing research which is to deal with the critical health issues faced by Arctic communities, and recommended methods of fighting those problems. The experts unequivocally conclude that concentrating on the well-being and flexibility of the North communities is a more effective way to solve the existing problems than resorting to routine approaches of the established medical care.

- Changes in the nature of interaction between the public and private spheres will impact development;
- Renewable energy will contribute to a "greening" of the economy;
- Increased accessibility provides opportunities as well as new risks;
- The Arctic as a new player in the global game.

In my opinion, the "Megatrends" synthetize the most current opportunities and challenges in view of the changes and tendencies occurring in the High North. They also suggest that in the context of the potential for exploitation of natural deposits and the development of new navigation and trade routes, as well as the consequences of climate warming, it seems absolutely necessary to point out the growing importance of the Northern Regions for the international cooperation.

In this situation, all indigenous peoples of the High North and the Far North attempt to face the test pertaining not only to the climate change, the changes in biodiversity and live resources on which their culture is so much dependent, but also to the dramatic alterations in the use of the land.[21]

In reality, the efforts attempting to mitigate the causes of climate change for the peoples of the North constitute a problem as big as the climate change itself. Although the indigenous population only minimally contributed to the climate change, they are the ones suffering the disproportionate consequences brought by it.

4.4 Protection of the Rights of Indigenous Peoples

As a result of complex historical processes initiated by expansive colonization policies of European countries and the United States, indigenous people in the High North had been for centuries marginalized. Today, indigenous peoples have become a nucleus of political and social changes in the Arctic region. A perception of the region through the categories of autonomous aspirations of the local communities changes the picture of today's Arctic and makes it incredibly interesting as those trends imply a possible redefinition of the interest of several countries in the High North.

The aspirations of indigenous peoples include above all the recognition of these groups and making them equal with other nations, as well as land rights and the strengthening of the protection of basic human rights. The first two issues, i.e. equality and land rights, prove occasionally problematic from the point of view of national administrations as a natural consequence of granting such rights would be, in the sense of international law, a final consensus regarding sovereignty of the

[21]The growing demand for renewable sources of energy such as wind power, hydropower, and nuclear power plants increases the pressure regarding these territories as never before. When the states examine the possibilities of introducing renewable sources of energy, it invariably appears that certain industrial structures together with roads, mines and the necessary infrastructure would be best located on the traditional territories of the indigenous people.

indigenous peoples, which is not so easy when taking into consideration much complex social and political as well as economic contexts of the involved countries.

It is well known that in various European countries the issues of local communities have been discussed for a number of years as their place and functioning are well rooted in history and tradition, and, in addition, supported by very clear legal solutions and regulations. However, that pattern does not quite work on the European territories of the High North divided among five, or rather eight states. In practice, it means eight different forms and administrative division structures, different forms of governance and local self-governing. They all are historically—to a larger or smaller degree—a heritage of colonization (perhaps with the exception of the Republic of Iceland where there are practically no indigenous people unless one would consider as such the escapees from Scandinavia who arrived there between the 8th and 9th centuries of the Common Era).[22]

The complexity of local problems of the indigenous people includes also issues like legitimization of democracy, strengthening of civic society, redistribution of resources, and growth of social prosperity in this part of the world. Hence the problems of respecting the rights of local people as regards the protection and development of the region become very important, together with promoting a more dynamic dialogue with national governments, combined with a better understanding of the traditional knowledge of the indigenous peoples. An analysis of the afore-mentioned issues becomes a high priority in the intensified cooperation within the frame of international projects. A good example is provided in Possible Themes for Cooperation on Adaptation of Arctic Communities to Climate Change, NordForsk Top-level Research Initiative. "The presented themes all require an integrated interdisciplinary approach and involvement of several scientific and societal sectors in order to form a strong foundation of future Nordic engagement in the vast circumpolar region in terms of:

1. Resilience of the Arctic;
2. Societal change in the Arctic;
3. Building bridges between science, policy and people;
4. Nordic Integrated Model of Climate Change and Adaptation;
5. Proactive adaptation to multiple possible land-use futures;
6. Large-scale industry meets small-scale communities" (norden.org).

New research clearly shows that indigenous peoples in the Arctic are uncertain about their future, particularly in the fields of the job market and business development. However, on the other hand, they are hoping for a better standard of living in the future and believe it will happen. The research project called "Survey of Living Conditions in the Arctic"—SLiCA was presented at the Arctic Council Ministerial Meeting in Nuuk, Greenland, on May 12, 2011. The project identifies and analyzes the living conditions of the indigenous peoples in the Arctic and is the

[22]It is worth-mentioning that Poles constitute today the largest ethnic group in Iceland.

first of its kind to have compiled this information for the Arctic region. SLiCA[23] is an International Polar Year project funded, among others, by the Nordic Council of Ministers. First of all, the Project is unique because it covers the entire Arctic Region and, secondly, because it employs different indicators from those routinely used to measure GDP and employed by the United Nations Human Development Index.[24] For example, new indicators in the project SLiCA are, among others, the indigenous peoples' perception of their own living conditions, their personal priorities and satisfaction connected with various situations and conditions of life. "In the SLiCA project we have interviewed almost 8000 people in the Arctic and have noted, amongst other things, that among the indigenous peoples there is great uncertainty associated with future opportunities—particularly in the labour and business markets" (arcticlivingconditions.org), claims Birger Poppel, head of the project and researcher at the University of Greenland, Ilisimatusarfik. On May 12, 2011, the Arctic Council officially supported the meeting of foreign ministers in view of their intention of signing the first binding agreement in the Council's history on maritime preparedness called SAR: Search and Rescue.[25]

All of the above confirms how incredibly important from the point of view of a scientific research analysis the protection and development of the Arctic Region are, as well as promoting a more dynamic dialogue with the indigenous peoples and local inhabitants of the Arctic who constitute a basic "structure" of the region. Intensively conducted research programs, supported by the governments (their beginnings can be possibly found, among others, in: the Nordic Saami Convention of November 2005, United Nations General Assembly Declaration 61/295 of 13 September 2007 on the Rights of Indigenous Peoples, in May 2008, the joint Danish and Greenlandic strategy for the "Arctic at a time of transition" of May 2008, and the Resolution on the High North) keep supplying us with a broadening knowledge of the living conditions of the indigenous peoples, help strengthen their developing of the social potential and thus gradually improve the standard of life of local communities, respecting the rights, traditions, cultures, and languages of the indigenous peoples.

The process of rebuilding own identity and the prospects of gaining possibly broad autonomy by the indigenous communities (as it seems to be difficult to suggest full sovereignty) are closely connected with the demands of the interested parties for possibilities of participation in the political, economic, and cultural

[23]More on the project at http://www.arcticlivingconditions.org.

[24]Human Development Index—HDI is a composite statistic of life expectancy, education, and income indices used to rank countries into four tiers of human socio-economic development, hence sometimes called the socio-economic indicator. The system was invented in 1990 and introduced by the UN for international comparisons. Since 1993, it has been used by UNDP in its annual reports.

[25]At the same time, Denmark took over the chairmanship from Sweden for the following 2 years, and the Danish Foreign Minister, Lene Espersen, announced that the Commonwealth of the Realm's Arctic strategy was to focus on the Arctic people and their opportunities. That is one more opportunity for SLiCA project to prove very useful.

spheres. The changes affecting the Arctic provide a basis for consolidation trends of the communities in a territorial context, some social and political standardization, and cultural integration. This context requires drawing attention to a certain general tendency, i.e. the power of basic human rights and the phenomenon of progressive democratization on a supranational scale have made visible changes in the functioning of political systems in this part of the globe.

The process of evaluation of the Arctic encompassed dispersed indigenous communities and solidified them into new autonomous political subjects. The efforts of the indigenous people towards gaining sovereignty have led to the creation of new states on the map of the world or paved the way for those communities to self-determination. This can be illustrated by the inhabitants of Greenland, autonomous already to a considerable degree there, and the Inuit and Saami in Norway where they have, among others, their own parliament. Greenland, inhabited in majority by the indigenous Inuit with a considerable degree of regional autonomy, in response to the challenges of globalization and in order to extend the autonomy, has been for years negotiating with the government of the Kingdom of Denmark to obtain the right to represent its own nation in the international arena. Such a clear drive of the indigenous people to protect their rights and traditional cultural values is fascinating for the research and analyses of the Arctic Region and it is also clearly a novel phenomenon straddling beyond purely regional dimensions.

One could ask a question whether international organizations and international law—e.g. the UN Declaration on the Rights of Indigenous Peoples,[26] the Saami Convention or others—do everything they can to secure the rights of the indigenous peoples in the North. This is a valid question to which there is no good answer. What is intriguing is that it pertains not only to the Russian Federation but also to such seemingly exemplary countries (among others, in observing human rights) as Sweden and Finland. The fact that Finland and Sweden chose not to ratify the afore-mentioned Declaration has been noticed by the European Parliament which called on both countries to do so.

It should be stressed that both individual indigenous people and their entire communities have full access to all human rights on equal basis. Just like everybody else, they may call upon all existing international procedures and institutions that monitor the observance of human rights.[27] Moreover, the rights of the indigenous people are separately described in the international legal instruments and separate international monitoring bodies. International standards for human rights pertinent to the Arctic are embodied in several treaties ratified by countries, declarations accepted through voting procedures in intergovernmental organizations, and the judicature accepted by the monitoring organs of various organizations. The key

[26]The UN Declaration passed in 2007 which recognizes the rights of indigenous peoples in every country of the world to the ownership of the territories inhabited by them.

[27]More on the subject in Alfredsson, G. Human Rights and Indigenous Rights. In: *Polar Law Textbook*, p. 148 and following.

documents have been passed under the auspices of the United Nations (UN), the International Labour Organization (ILO), the Council of Europe (CE), the Organization for Security and Co-operation in Europe (OSCE), and the Organization of American States (OAS). The UN and ILO are two organizations that pay the most attention to the rights and needs of the indigenous people, both in terms of establishing the norms and the control. In various countries, respecting human rights is controlled through different procedures. Some of them are done on the basis of treaties that involve examination of State reports and the procedures of quasi-judicial submission of complaints, while others are based on the Charter of the United Nations and the declarations, rather than treaty obligations, which involves special investigative procedures and overall periodic reviews of the actions of all countries within the frame of the UN Human Rights Council. Special measures and special rights introduced for indigenous people are to prevent discrimination of these groups and/or their members, and to treat them equally to others. The aim of these measures is to protect, among others, the specific culture, traditional economic activities, ownership and governance of land and natural resources, ecological issues, and self-governing.

Even though in the case of the Arctic countries we are dealing with the democratic subjects of international law, they are characterized by significant differences in the polar areas. Those differences pertain to the scarcity or even complete lack of representation in the capitals, parliaments or civil service. This could be perceived as discrimination practices against the indigenous people resulting in the lack of equal access and equal opportunities to utilize public services and to participate in political, economic and cultural matters, and the deficiencies in just distribution of national riches, as well as impossibility to preserve and maintain own cultures and own modes of existence.

Such a picture of human rights and their practical realization arouses more questions and must be considered debatable. It seems that the doubts cannot be dispelled even by the very good comparative report, authored by Miguel Alfonso Martinez—Special Rapporteur of the Sub-Commission—illustrating main differences in human rights observance throughout the Arctic, focused not only on the examples from the field of self-governance and solutions regarding autonomy but also concerning the issues of active protection of the identity, cultures, land ownership rights, and the right to the natural resources, as well as health problems and social services (Martinez 1999).

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www.norden.org

Chapter 5
The High North: An Economic Dimension

Abstract The economy of the High North can be characterized as mixed, with a very strong extractive sector which is to secure the subsistence of the local people. In this respect, our area of interest has abundant natural resources, from petroleum and minerals, to fish and forests. Management of the area and coordination of action are crucial due to climate changes. In spite of permafrost and ice, great distances and difficult accessibility, this is no longer the economy functioning in isolation and therefore protected against the consequences of outside influences and decisions. It is a place where the newest technologies meet and at the same time the land of traditional techniques that make survival in extremely harsh climatic conditions possible. The economies of the High North have a series of common features which differentiate them from the economies of the contemporary world. Equally important are significant differences between regions and diversity among the local communities of the region. Although the formal sector of the economy of the High North is perceived through the perspective of exploitation of natural resources, the local economy can be defined as mixed, where market and non-market activities all play an important role in supporting community livelihoods.

Keyword Economy of Arctic · Economy and environment · Sustainable development · Maritime transport · Development versus pollution

5.1 Opportunities and Barriers

5.1.1 Characteristics of the Region's Economies

During World War II, the High North was treated mainly as a strategically convenient location for radar stations, so the focus was primarily on the defense. Today, the issues of sovereignty and security have been broadened by Northern states by the problem of improving the conditions of life for local people, together with environment protection, developing cultural cooperation (Czarny 2009, p. 159), and above all the prospects of economic development.

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_5

Economy of the High North can be characterized as mixed, with a very strong extractive sector which is to secure the subsistence of the local people. Moreover, there are significant differences not only between individual areas but also local communities where the market based on capital, skills and natural resources exploration coexists with a non-market economy characterized, among others, by traditional hunting and trapping, gradually more connected with the economy of local markets.

In spite of permafrost and ice, great distances and difficult accessibility, this is no longer the economy functioning in isolation and therefore protected against the consequences of outside influences and decisions. It is a place where the newest technologies meet and at the same time the land of traditional techniques that make survival in extremely harsh climatic conditions possible.

In other words, it is a region of changes experiencing the consequences of global processes and implications of competition for access to not only current but the future potential resources where the higher global expectations as regards exploration of the Arctic's natural resources on an industrial scale will be accompanied by the increased environmental and human cost. The key challenge here seems to be reconciling economic activities and the environmental integrity. Only such approach will allow reaching the desired objective of the sustainable socio-economic development of the region.

The economies of the High North have a series of common features which differentiate them from the economies of the contemporary world. As said before, equally important are significant differences between regions and diversity among the local communities of the region. Although the formal sector of the economy of the High North is perceived through the perspective of exploitation of natural resources, the local economy can be defined as mixed, where market and non-market activities all play an important role in supporting community livelihoods. Wages, traditional pursuits, and government grants and subsidies all provide important sources of income. The relative size and importance of the market, the non-market sector, and transfers are subject to significant fluctuations in the High North. The formal sector of the economy, based on the market, is characterized by the presence of large-scale capital which by its nature generates the industrial production capability. The informal, subsistence providing non-market economy can be described as based on traditional pursuits such as fishing, hunting, trapping and gathering, always in connection to the local market economy.

5.1.2 Economic Potential of the High North

In 2002, the population of the circumpolar Arctic was estimated at approximately 10 million (Aslaksen 2008, p. 118) which makes up only 0.16 % of the world population. With respect to the share of global production of goods and services in terms of measured gross domestic product (GDP), the Arctic share is somewhat higher and stands at 0.44 %. Those numbers may give an impression that the Arctic

plays only a minor role in the global economy but the picture changes dramatically if we consider the importance of raw resources in the world of today.

In this respect, our area of interest has abundant natural resources, from petroleum and minerals, to fish and forests. Management of the area and coordination of action are crucial due to climate changes. Regrettably, the consequence of the Arctic's economic development is increased pollution which travels across the borders and affects global public goods like clean air, water, biodiversity and wildlife. As the Arctic regions belong to different states, coordination within this issue is one of the major challenges as information is dispersed and not easily available at the circumpolar level. Hence comes the necessity of presenting a comparative overview of the scale and structure of the economy in the region. As writes Aslaksen (2008, p. 241), "The Arctic is made up of 28 separate regions in 8 different countries: Arctic Russia includes the Republics of Karelia and Komi, the Murmansk and Arkhangelsk Oblasts, the Yamalo-Nenets and Khanty-Mansi Autonomous Okrugs, the formerly autonomous Taimyr and Evenkia[1] Okrugs, the Republic of Sakha,[2] the Magadan Oblast, and the Chukotka and Koryakia[3] Autonomous Okrugs. The North American Arctic includes Alaska and the Northern territories of Canada (Northwest Territories, Yukon, Nunavut). The European Arctic consists of Greenland, Faroe Islands, Iceland and Arctic Norway (including the Svalbard Archipelago and Jan Mayen), Arctic Sweden and Arctic Finland."

The primary sector in the Arctic consists primarily of large-scale extraction of non-renewable resources and harvesting of renewable resources. Industry plays some role only in few Arctic regions and is treated as a secondary sector. The tertiary sector is service industries that accounts for some 50 % of economic activities. The three Russian regions of Khanty-Mansi, Yamalo-Nenets and Sakha, and Alaska generate more than 60 % of Arctic economic activity, made up mainly by crude oil and natural gas extraction.[4]

Economically, Russian Arctic is based mainly on industry and to a lesser extent on the forestry. Employers connected with the state administration and the military play a significant role there. The fuel sector is now a predominant source of income in Arctic Russia; in the European part is it represented by the Shtokman field described later in this chapter and in detail in the chapters to come. Distribution of wealth is very unequal in Russian High North: in Khanty-Mansi and Yamalo- Nenets gross product per capita is considerably higher than in the other Arctic regions of Russia (McDonald et al. 2006, pp. 59–60). In the European part, engineering industry, fishing industry, shipbuilding, forest, and defense industry dominate. Agriculture plays only a negligible role because of a very short growing season.

[1]As a result of the referendum of 2005, on January 1, 2007, the two autonomous okrugs of Evenkia and Taimyr (Dolgano-Nenets) were liquidated, and incorporated into Krasnoyarsk Krai.

[2]The official name is the Yakut Republic.

[3]As a result of the referendum of October 2005, on July 1, 2007, the Koryakia Autonomous Okrug was incorporated into the Kamchatka District thus creating Kamchatka Krai.

[4]The highest per capita gross domestic product in the Canadian Northwest Territories is due to a low population density.

Although it may seem surprising, education, health and social work is the largest industry in Norwegian High North, followed by public administration and defense. Fishing (or perhaps marine harvesting), a traditional core element of the economy of northern Norway, currently contributes only 3.7 % to the regional GDP.

The quoted estimates may be, however, misguiding as although fish is harvested in the north, some fishing companies have headquarters in southern Norway. As a consequence, part of the income from fishing in northern waters may be registered as income in the South of Norway. Nearly half of Norwegian fishermen are employed in the North, and this region plays also a crucial role in producing electric energy from hydroelectric power plants (McDonald et al. 2006, p. 57). Mining is a very important sector of economy on Svalbard; today, two Norwegian mines operate on the archipelago (Sveagruva and Gruve 7), and one Russian (Barentsburg). Norwegian mines provide main employment for the Norwegian part of the islands and play an important social role. But tourism grows definitely in importance as in 2002 it generated income 60 % larger than the fishing industry. Svalbard is one of the most frequently visited places in the region mostly because of its unique natural features and watching polar bears in their natural habitat is one of the main attractions (McDonald et al. 2006, p. 58). Extraction of oil and natural gas does not play a significant role in Arctic Norway; deposits of these resources are located on the continental shelf on the North Sea. They were discovered in the 1960s and are of major importance in the Norwegian management of energy resources (Czarny 2009, p. 145). In 2007, together with launching the exploitation of natural gas in Snohvit field, located 140 km north of Finnmark province, the sector of fuel extraction gained importance. In 2000, oil deposits were found in Goliat field, situated in the Barents Sea, 85 km north of Finnmark. It is the first oil deposit discovered in the Norwegian part of the Arctic and the production was scheduled to begin in 2013 (Friend 2009).

Fishing is the largest industry in Greenland, out of which shrimp harvesting has a lead role. Once traditionally dominating cod fishing became of minor economic value due to decline of the resource base because of overfishing. Other sectors which constitute a base for employment on the island are education, health care and social work. Sheep husbandry has gained significance in recent years in part as a result of a warming climate. Therefore, grass production has replaced imported fodder and created a profitable industry. It is interesting, however, that there is no private ownership of land in Greenland and the state allocates user rights to animal herders (McDonald et al. 2006, p. 53).

Iceland's economy is mainly focused on fishing and fish processing which jointly accounted for 11.4 % of GDP in 2002, although shrimp harvesting is also of importance. Fossil fuels are not extracted at all, but the country is rich in hydropower and geothermal potential, not yet fully utilized (McDonald et al. 2006, p. 56). Iceland's carbon footprint is therefore minimal and it is estimated at 0.2 %. That is all because in the national energy balance renewable sources are of crucial importance; 10 hydropower plants and 2 geothermal power plants provide over 70 % of the electricity consumed in Iceland. The great potential in this form of producing energy have prompted the government in Reykjavik to attract

energy-consuming industry to the island: steel and aluminum mills (Czarny 2009, p. 130). Oil is used only for cars and fishing boats, but even in this area there are plans to introduce renewable resources. The objective of Icelandic authorities is the generation of energy entirely from renewable energy sources by 2030, and the complete elimination of fossil fuels by 2050 (Czarny 2009, p. 132).

Practically all the Arctic regions of Scandinavia, along with Iceland, Greenland and the Faroe Islands, have a GDP per capita around the average for the circumpolar Arctic. These regions all have relatively diversified economies, a relatively high standard of living and denser economic development than elsewhere in the Arctic countries.[5]

It needs to be said that high GDP per capita levels do not automatically transform to high levels of disposable income and/or consumption, as it is particularly true in the regions with substantial extractive industries. On the one hand, resource rents and return to capital may be transferred out of the region to capital owners. Although these figures will still add to regional GDP, they will not be available for consumption or saving in the region. On the other hand, direct state transfers will contribute to per capita levels of disposable income and/or consumption, but will not show up in regional GDP figures.

In spite of the above, the income systems of the North are rapidly changing which allows a statement that currently the general income level in the Arctic is relatively high. Usually, high income is noted in the largest settlements at levels comparable to Northern European standards. Incomes in the smaller settlements are, on the other hand, substantially lower. Women are becoming the main income winners through the wage work. There also exist substantial differences in the welfare model applied in different parts of the Arctic. The main difference is in relation to the sources of income transfers. Greenland and other Nordic countries are dominated by the welfare model and have transfers based on high taxes and public involvement.

In turn, the Russian North, largely financed in the Soviet times by substantial public incentives in order to attract southerners to relocate North, for the last 10 years has undergone something of a transition period. This has resulted in limited transfers and dwindling wages, eventually triggering massive out-migration from the region.

Economies in the North are not determined by one system of capital/wage and transfer payment rationality. The formal economy is complemented by the informal economy and subsistence activities, which continue to play an important role particularly in respect of individual and family-based activities such as hunting and fishing. This sort of activity relates to or even reflects directly the traditional social and/or cultural values. The informal sector (grey area) can be in this context defined as subsistence activity which is sold or exchanged in a local market or between people, but is not formally registered, for example, through taxation. It is located somewhere between the subsistence economy, i.e. hunting and fishing for oneself or one's own family, and the formal economy.

[5]For data on overall GDP of the Arctic Region (2003) and per capita, go to Aslaksen (2008) pp. 242 and 243.

Usually, products from hunting and fishing are of course also transferred to the formal sector in addition to being consumed privately. As such then, the informal economy provides a link between the two economic sectors. On the basis of practical solutions, one could argue that in the Arctic making a strict differentiation between the subsistence and cash-based economic sectors is more or less artificial and rather senseless since the two sectors of economy are closely linked if not intertwined. As writes Rasmussen (2007, p. 16): "Detailed analyses of the real, or formal, economy remain however rather sparse. In recent years however a more thorough analysis of the economic role of the various sectors in Greenland has been conducted. The result of this analysis also provides an indication of both the relative and the absolute magnitude of the scale of these informal economic activities in relation to that of the formal economy."

Natural resource exploitation is still considered to be the main economic basis for the majority of communities in the North. Nevertheless, the real base is currently provided by the so-called "third sector," i.e. services with wage work in administration, education, the social service sector etc. In practice, this is now the main income source for most families. In addition, such incomes have in fact become necessary for the maintenance of many of the traditional renewable resource activities. For example, hunters and fishermen in Greenland are increasingly dependent on supplementary or perhaps basic wage work. In a family context, women are becoming the main income bringers, typically from their work in schools, kindergartens, public and private administration, or cleaning. "In Greenland 24 % of hunters and fishermen have incomes from other activities. In more than 70 % of households however women contribute to the family income, and in more than 50 % of families the major income source is generated by women" (Rasmussen 2007, p. 17).

In Greenland, similarly to other Nordic countries, transfer payments have become a substantial part of the welfare economy, including funding for the maintenance of a public system of schools and health services, but also including pensions, childcare, housing support, different types of social services, and to some extent, the maintenance of the technical, social, and cultural infrastructure. In many small settlements where out-migration has resulted in an age structure dominated by pensioners, the main cash-income source is often pensions. Simultaneously, there function several informal, private economic activities like sales to relatives, neighbors, on local markets, etc., as well sharing between families and neighbors, all of which may substantially improve the family's income. In reality, the small cash income in many communities may be of crucial importance for the continuation of hunting and fishing.

Apart from oil and natural gas, the Arctic contains other abundant mineral resources, in particular nickel, cobalt, tungsten, palladium and platinum. Many known reserves are not exploited because of their inaccessibility. Arctic Russia extracts the largest amount of minerals, but the other Arctic nations also have important extractive industries providing raw materials to the world economy.[6]

[6]More on the subject in Sects. 5.2.1 and 5.2.2.

It should be also noted that global warming opens new prospects for Finland. Among others, it concerns developing Lapland, i.e. northern parts of the country known for their wilderness and extremely harsh climate. Those areas may hold unexplored and undiscovered minerals in quantities significant not only for Finland but also the world economy. Among others, these are probably deposits of iron ore, rare metals including gold, uranium, and even diamonds. Their possible exploitation would require building not only mines but also roads and railways. To satisfy future needs of Lapland, next year is to see the launching of a construction of a six billion euro nuclear plant. The Lapland of tomorrow is to be an area of tourism, mining, and reindeer herding. In order for it to happen, as stated by the biggest paper in Finland *Helsingin Sanomat* (January 2, 2011), transport routes to Central and Eastern Europe are needed. One of them is to be a railway tunnel beneath the Gulf of Finland, i.e. across Estonia, Latvia and Lithuania to Poland, and then to the West of Europe.

When discussing the economy of the North, it is impossible to omit tourism which is a new and rapidly growing sector. In the future, tourism may become a very important branch of the circumpolar industry and greatly contribute to the economic development of the region. Climate changes and gradually improving infrastructure related to natural resources exploitation moving northwards may provide access to very attractive and previously inaccessible places thus creating conditions for further development of tourism.

It appears, however, that Arctic tourism poses a number of challenges to sustainable development. On the one hand, tourism represents an economic opportunity, but on the other further development of Arctic tourism also brings risks that might destroy the tourist industry's own base of attraction, by contributing to climate change and environmental degradation. As writes Dieter K. Müller form the Department of Geography and Economic History of Umeå University, "Nevertheless, tourism development is one of few livelihood alternatives for local communities—and not least indigenous peoples—that otherwise risk losing their traditional livelihoods, for example, owing to climate change. Furthermore, efforts to protect nature, such as the establishment of national parks, have created new attractions for Arctic tourism."[7]

Fishing in the Arctic in 2002 amounted to around 10 % of the world catch of wild marine fish. Apart from wild marine fish catch, the Arctic catch of shrimp and snow crab was 5.3 % of the global catch (2002). Farming of salmon and trout in the Arctic was around 7.7 % of the world production. The Arctic is estimated to have the share of the global volume of forest at some 8 %. The biggest forests in the world remain in the Arctic mostly in their wild natural state because of harsh climate, great distances, and lack of infrastructure. Hence only 2.2 % of total timber removal takes place in the Arctic.

[7]MISTRA ARCTIC FUTURES IN A GLOBAL CONTEXT, A Swedish research programme in social sciences and humanities funded by Mistra, the Foundation for Strategic Environmental Research, 2011, www.arcticfutures.se, p. 4; see also www.mistra.org, www.polar.se.

Although the importance of the economy in the Arctic is now becoming more widely recognized, sufficient data is not yet available to give a comprehensive picture of the Arctic's current and future economic activities. However, it is possible to define some of its characteristic features and list the main ones as follows:

- the Arctic economies generate a substantial share of the income from resource extraction, which means that even small changes may bring far-reaching and permanent consequences;
- a small and dispersed population poses significant problems;
- a number of challenges appear due to climate change;
- small internal markets and the narrow resource-based economy make the North dependable on external trade as a key source of income. At the same time, however, the High North has a great potential and possibly a great opportunity in spite of its economic vulnerability and relative instability.

It seems that the abbreviated analysis of the issue can be crowned by the following words presented by Loukacheva (2010, p. 99), which also might serve as a summary: "A key challenge facing the North is integrating economic activity with environmental integrity, social concerns, and effective governance systems. In the context of the minerals sector, the goal should be to maximize the contribution to the well-being of the current generation in a way that ensures an equitable distribution of its costs and benefits, without reducing the potential for future generations to meet their own needs. This requires a framework for sustainable development based on an agreed set of principles and an understanding of the key challenges and constraints facing the extractive industry at different levels and in different regions and the actions needed to meet or overcome them."

5.2 Availability of Resources

5.2.1 Energy Resources

In the era of high prices of energy resources, the melting of Arctic ice, and climate warming, the area under discussion is characterized by high activity and even a certain nervousness of the states of the region. It is hardly surprising if we keep in mind that according to American geologists from USGS, offshore resources of the Arctic alone are considered to possess extremely large deposits, including crude oil and natural gas reserves.

Oil and gas in the region, beneath the sea bed, were discovered as early as the 1960s. Initially, the Arctic shares of global oil and gas production were estimated at 10.5 and 25.5 %, respectively.

According to a US Geological Survey completed in 2000, Arctic shares of global proven and undiscovered reserves of oil and gas are around 14 and 23 %, respectively, which already meant that that the Arctic was one of the main players in the global energy supply. The Arctic holds 5.3 and 21.7 % of the total proven

global reserves of oil and gas. Almost all of the Arctic proven gas reserves are found in Russia. Based on geological evidence and methods, the Arctic share was assessed at 20.5 and 27.6 5 of undiscovered oil and gas, respectively.

According to the United States Geological Survey (USGS), north of the Arctic Circle tremendously large deposits of crude oil are situated, estimated at 90 billion barrels, and deposits of some 47 billion cubic meters of natural gas, which is the equivalent of liquefied natural gas (LNG).[8]

The estimates of hydrocarbon deposits in the High and Far North (http://www.masterresource.org), according to the U.S. Geological Survey, U.S. Energy Information Agency, and the Russian Federation, in billion barrels of oil (bbo) and trillion cubic meters (tcm) are as follows:

Area	Total oil	Total natural gas
Arctic region	90 bbo (est.)	47 tcm
Beaufort Sea	–	99 tcm (est.)
Russian Federation (all territories)	60 bbo (proven)	47.5 tcm (proven)
Russian Arctic	3 bbo (proven)	7.7 tcm (proven)
Ocean territories	67.7 bbo (est.)	88.3 tcm (est.)

Today, all the data are considered estimates only, but the research conducted so far indicates that nearly all (84 %) of the oil and gas is expected to be located offshore (Kubiak 2012, p. 54).

The Arctic is estimated to contain about 13 % of the world's undiscovered oil and 30 % of its gas (http://pubs.usgs.gov).[9] As writes K. Urbański (2008): "Most of the deposits are situated under the sea bed. These areas belong to the USA, Canada, Sweden, Norway, Russia, and Denmark (Greenland)." When the ice sheet rapidly melts due to global warming, it is easier to search for the deposits and with time also to exploit them. According to the afore-mentioned American survey, most of the Arctic deposits are located near enough to the land to be included into the economic zones of the region's countries.[10]

Exploitation of the deposits with the use of today's technology is not only possible but with the growing price of energy resources quite profitable. As mentioned before, the size of the deposits has not been definitively proven yet, but the sites being currently exploited already make up a sizeable portion of the world exploitation of fossil fuels. The figures show that the global oil and gas production are at 10.5 and 25.5 %, respectively, and it comes from the areas situated near the polar circle or north of it, out of which some 97 % of total Arctic oil and gas

[8]Estimated natural gas deposits under sea bed.

[9]The Arctic Council estimates the energy potential of the Arctic at 5 % of the world's oil deposits and 20 % of gas. See also Młynarski (2011); and also Bird et al. (2008).

[10]The shelf holds rich deposits of oil, gas and minerals. How much of them the Arctic really holds, nobody knows, and the issue is a subject of heated debates.

production takes place in Alaska and the Russian Federation. This is very much when compared to other regions of the globe, especially considering sparse population, and the underdeveloped infrastructure and economy of the region.[11]

Some scientists make comparisons of the Arctic to the Middle East: both are large areas of land unsuitable for agriculture, but rich in resources craved by the highly developed countries, and incredibly unfavorable towards people searching to make a living in those inhospitable areas (Lindholt 2006, p. 27).

The estimates of undiscovered oil and gas of the Arctic Circle show the size of the deposits for which the Arctic countries vie. In the European part of the High North, the greatest chance of discovering a "resource Eldorado" have the Russian Federation in the East Barents Basins, Denmark (or rather Greenland today) at the coast of Greenland, and Norway. Climate changes make access to the already discovered deposits much easier and increase the chances of finding new ones. Sea ice retreat allows for the possibility of opening new shipping routes and improving the capacity of those already existing, which additionally boosts the interest of various governments in the region and assigns a new dynamics to the old international disputes.

Potential oil and gas-bearing regions make up about 90 % of the total shelf area of Russia: 5.2–6.2 million km^2. This includes 2 million km^2 in the Western Arctic on the shelves of the Barents and Kara Seas[12] and 1 million km^2 on the shelf of the Laptev Sea, the East Siberian and Chukchi seas, and the Eastern Arctic.

There exist huge projected oil and gas reserves in the Timan-Pechora, Yenisei-Laptev, Barents-Kara and Indigirka-Chukotka oil and gas provinces, as well as the South Yamal, Lena-Anabar and Anadyr oil and gas-bearing regions.

11 fields are situated on the shelf of the Barents Sea and those include four oil fields (Prirazlomnoe, Dolginskoe, Varandeyskoe and Medinskoe), 3 gas fields (Murmanskoe, Ludlovskoe and Severo-Kildinskoe), 3 gas condensate fields (Shtokman, Pomorskoe and Ledovoe) and 1 oil and gas condensate field (Severo-Gulyaevskoe). The Shtokman field alone, which is the largest in the world, contains about 4000 billion m^3 of gas. In the Kara Sea there are gas condensate fields that are just as big—Leningradskoe and Rusanovskoe. There are more than 180 fields in the Timan-Pechora province. They include fountain deposits that provide up to 1000 tons of oil per day.[13] The richest deposits of oil, gas and gas condensate have been explored in the Nenets Autonomous Region. The oil reserves of the Russian Federation are at the level of reserves of Norway, which is first in Western Europe in

[11]For summary of results of the resources go to: USGS, Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle. http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf.

[12]There are potential hydrocarbon resources of 50–60 billion cubic meters on those shelves. Compare World Energy Outlook 2012, Presentation to the press, London, 12 November 2012, International Energy Agency, OECD/IEA 2012.

[13]This is comparable with the level of the best fields in Iraq. Compare: World Energy Outlook 2012, Presentation to the press, London, 12 November 2012, International Energy Agency, OECD/IEA 2012.

terms of its oil reserves. The gas reserves are at the same level as reserves in India; they are greater than those of Denmark and Germany put together and they constitute 11 % of the reserves in Western Europe (http://www.arctic-info.com).

The Khanty-Mansi Autonomous Region, the main oil and gas region of Russia, is one of the largest oil-producing regions in the world. Although the district makes up only 3 % of Russia's territory, it has been providing 57 % of oil production in the country for many years. It has more than 500 oil and gas deposits, the reserves of which are approximately 20 billion tons. Projected oil reserves are estimated at 35 billion tons. In the Khanty-Mansi Autonomous Region, there are such large oil and gas fields as Mamontovskoe, Samotlorskoe and Ust-Balykskoe. Huge natural gas resources brought international recognition to the Yamalo-Nenets Autonomous Region. It is the largest gas producing region of Russia, which produces 90 % of Russian gas and 22 % of the world's natural gas. The largest deposits in the world—Urengoyskoe, Zapolyarnoe, Medvezhe and Yamburgskoe will satisfy domestic and export needs of Russia in the 21st century. In the Yamalo-Nenets Autonomous Region, there are 32 hydrocarbon fields: four of them are on the shelf of the Gulf of Ob, two in the Kara Sea and the rest on land. It is planned that three industrial zones will be created for the integrated development of hydrocarbon reserves in the Yamal Peninsula. The first to be put into the development in 2012 will be the largest field called Bovanenkovskoe. The two more should follow: Yuzhnaya and Tambeyskaya. In the long term, it means that the Yamalo-Nenets Autonomous Region will keep its leading position in domestic gas production and one of the top positions in global production.

The afore-mentioned plans constitute only a part of a broader Russian program which is to continue through research in the North, which is of great importance in developing the economic potential of this region and strengthening the country's national defense. Therefore, it is necessary to create conditions that encourage investment from resource companies and provide guarantees that investments in geological exploration will be safeguarded.

In the American sector of the Arctic, oil reserves on the shelf of the Chukchi Sea are estimated at 15 million barrels and gas reserves at more than 2 trillion m^3. The Prudhoe Bay field on the northern coast of Alaska currently accounts for 20 % of the oil production in the US. 49 oil and gas fields were discovered in the Canadian sector in the delta of the Mackenzie River and 15 fields on the Arctic Islands. The largest gas reserves are located off the coast of Alaska and Siberia.

Currently, there is no oil and gas extraction in Greenland. Geologists estimate that Greenland holds one of the largest world deposits of various materials. Only offshore northeastern Greenland alone holds up to 31.4 billion barrels of undiscovered oil (Czarnecki and Kublik 2013) which matches two thirds of the proven oil deposits in Russia. In addition, the ice of Greenland covers deposits of iron ore, zinc and rare earth metals. A joint research, organized by the American and Danish geological services, shows that it is a very difficult area for exploitation: (the distance to the sea bed is more than 500 m) and weather conditions are extremely harsh. Between 1975 and 2000 it was free of ice on the average only for some

150 days in a year, and the rest of the time the sea water was covered with floating blocks of ice reaching some three meters in thickness. All of this made any exploitation practically impossible. Fortunately for the oilers, the period of ice-free water grew in recent years to 180 days annually. This in essence means that together with further warming of Greenland exploitation on the industrial scale can be soon possible. The main obstacle remain the afore-mentioned weather conditions which call for the use of special oil rigs resistant to ice, which in itself is a huge technological challenge. The stakes are very high as access to the deposits means not only huge potential profits but also in an attractive location stable politically and uncontested by any other country. The first attempts at exploitation on the calmer western waters of the island were made in 2010 by the British oil company Cairn Energy, which already met with protests of ecologists fearing the possible impact on the environment. They efforts were continued in 2011 using the state-of-the art drill ships and partially submerged platforms (Kubiak 2012, pp. 121–122).

In the High North, some 145 km off the Norwegian coast near the city of Hammerfest, there is a StatoilHydro fully-automated plant. From a depth of more than 300 m below the Barents Sea level, it extracts gas which is pumped through a 70-cm pipeline from the ocean floor and transported to a terminal on land. There, it is cooled, liquefied and loaded onto tankers. The platform is called "Snow White" (*Snøhvit*) and it is an experimental, completely automated installation for extracting gas from the depth of the sea. If the prototype proves successful, more installations like that will extract gas in great quantities from the Arctic Ocean.

April 2011 brought the information that Norwegians have the new prospect of huge oil and gas reserves under the Barents Sea. The Norwegian Ministry of Petroleum and Energy, in a communique issued on April 1, 2011, named it the biggest deposits discovered in the last decade.[14] They are situated some 200 km from the shoreline of Norway and were discovered through exploration drilling from a special drilling platform built especially to operate in the extreme circumpolar conditions. Water depths reach there about 370 m and oil fields and gas deposits are located at 880 m beneath the sea bed. According to the estimates of the Norwegian authorities, the discovered field holds some 250 million barrels of oil equivalent worth over 21 billion euro. In turn, the consortium led by the state-owned Statoil, which actually made the discovery, estimates that the field holds half a billiard barrels. The drilling will be continued to a vertical depth of 2200 m below sea level. Statoil and its partners[15] have chosen a development concept for the twin fields of Skrugard and Havis discovered in the Barents Sea. It includes a floating production unit with a pipeline to shore and a terminal for oil from the Skrugard field at Veidnes outside Honningsvåg in Finnmark. The exploitation is scheduled to begin in 2018. As mentioned before, in 2011–2012 Statoil and its partners discovered Skrugard and Havis, which are two independent structures within the same license and represent

[14]It takes usually 10 years from making a discovery to production of oil and gas.

[15]Partners in the project are Statoil operator (50 %), ENI 30 %, Petoro 20 %.

the Skrugard field development. According to the estimates, 400–600 million barrels of recoverable oil have been proven in this area. "The decision to bring Skrugard oil ashore at Veidnes is a key element of the further development of Norwegian oil and gas industry. This may spark off a new industrial era. This concept choice will facilitate further exploration and help make any future discoveries profitable," says Øystein Michelsen, Executive Vice President for Development and Production Norway (after Pettersen 2013).

The Skrugard and Havis assets will have a common infrastructure. Production from Skrugard and Havis will be tied into a semi-submersible floating installation through a subsea production system located in about 380 m of water. The production is estimated at almost 200,000 barrels of oil equivalent per day. The oil will be transported through a 280-km pipeline from Skrugard to Veidnes outside Honningsvåg. It will be piped directly to an oil storage facility, i.e. two mountain caverns. The oil will be sent from there in a pipeline to the quay for transportation by tankers. Some 50–100 crude tankers per year are estimated to call at the terminal.

In mid-August 2012, a company much smaller than Statoil, named Det Norske,[16] reported a discovery of an oil field called Geitungen. The deposit is estimated to hold some 140–270 million barrels of oil. According to the Norwegian concern Statoil, this field may be connected to the gigantic deposit discovered a year earlier called Johan Sverdrup, which might diminish the cost and risk of exploiting Geitungen. The oil field Johan Sverdrup was one of the biggest deposits found in the world in 2011. The consortium of which Statoil is a part estimates that the Johan Sverdrup deposit holds from 1.7 trillion to 3.3 trillion barrels of oil.[17]

In view of the above, Northern Norway, step by step, is becoming the country's next big petroleum region.

5.2.2 *Other Natural Resources*

The Arctic part of Siberia abounds in forest riches, mineral wealth and energy resources. In the past, its economy was based on hunting, fishing, reindeer husbandry and exploitation of minerals. Hard coal mining used also to play a significant role as it was necessary for ships navigating the Northern Sea Route.

Even though the Arctic's situation is somewhat uncertain, it is well known that the value of Arctic's energy reserves, gold and other precious metals is tremendous. Many experts claim that in addition rich deposits of carbon, diamonds, platinum, lead, manganese, nickel, and lead can be found there. The Arctic can also boast of

[16]It has 20 % shares in the concession for oil exploitation.

[17]More on the subject at http://wyborcza.biz/biznes/1,100896,12381144,Norwegowie_znalezli_nowe_wielkie_zloza_na_Morzu_Polnocnym.html#ixzz2pFfSmhYf. Retrieved October 21, 2012.

iron, uranium, copper, rare earth metals, precious stones, and many other resources, including fish.[18]

Climate warming brings the riches of fish in the sea waters of the High North: shoals of cod, halibut, salmon, mackerel, trout and shrimp, so desired all over the world. Only in Greenland, "in 1915 the catch of shrimp was 29 ton, in 1950–25,000 ton, and in 1998 the catch reached 50,000 ton annually" (Nazarri 1998, p. 44).

The largest potential gas deposits of the Arctic are situated on the continental shelf of the Russian Federation. In addition, on the territories of the Russian economic zone circa 90 % of nickel and cobalt, 60 % copper, 96 % platinum, and 100 % apatite are extracted. The Arctic zone of Russia is a huge resource pool and one of the few regions in the world where there are almost untouched hydrocarbon and mineral reserves. In relatively small areas there are concentrations of the largest mineral deposits. The Arctic zone contains unique and predicted resources of rare metals and other minerals. The main resources of copper and nickel, platinum and rare earth metals, tantalum, titanium, iron, niobium, base metals, phosphorus, fluorite, chromium, manganese, diamonds and gold are concentrated in the northern part of the Kola Province. Platinum metals and copper-nickel ores are found in the northern part of the Taimyr-Norilsk Province. Reserves of vanadium, molybdenum, tungsten, chromium, gold and base metals have been found in the Taimyr-Severnaya Zemlya Province.[19] In the Yakutsk and Anabar[20] Provinces there are diamonds, iron and rare metals. Platinum metals, phosphorus, niobium, iron and diamonds have been discovered in the Maimecha-Kotui and Udzhinsk Provinces. The Verkhoyansk (Russian: *Верхоянский улус*) and Yana-Chukotka Provinces have deposits of tin, mercury, gold, tungsten, molybdenum, copper, silver, platinum, and complex metals.

It must be said that it is hard to obtain statistics and resource assessments, as well as possible production figures as regards the High North. It is even harder to obtain their confirmation as extractive industries are very important for all of the Arctic states. For example, Sweden comprises less than 0.15 % of the earth's total area, but

[18]Estimates as to the extent of these deposits vary considerably, as well as assessing the viability of mining and exploration. According to the United States Geological Survey, there are deposits of gas hydrates methane clathrate in the seabed and in some Arctic regions. See 90 Billion Barrels of Oil and 1670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic at http://www.usgs.gov/newsroom/article.asp?ID=1980. Retrieved September 05, 2012; Compare: Kijewski (2009).

[19]Severnaya Zemlya (Russian: *Северная Земля*—Northern Land)—archipelago in the Arctic Sea north of 80°N, with the surface of 37,000 km². Severnaya Zemlya belongs to the Russian Federation and is a part of Krasnoyarsk Krai. The Northern Land separates the Kara Sea from the Laptev Sea. Severnaya Zemlya is a continuation of Taymyr Peninsula. Severnaya Zemlya was the last archipelago discovered on Earth. The discovery was made in 1913, and initially it was thought to be a single island, originally named "Emperor Nicolas II Land." The flight of *Graf Zeppelin* over the Arctic in 1931 established that there existed at least two islands. Today, it is known that the archipelago is comprised of four main islands: October Revolution (14,204 km²); Bolshevik (11,206 km²); Komsomolets (8812 km²); Pioneer (1527 km²) and several other smaller ones of which the largest are: Schmidt Island (467 km²) and Little Taymyr Island (232 km²).

[20]Anabar is a short version for the name Anabarski District, one of the most northward points in the Arctic part of the Sakha Republic (Yakutia).

is responsible for 2 % of global iron ore production mostly from Kiruna and Malmberget (the Norbotten district of Swedish Lapland). The country is also a significant producer of copper, lead, and zinc. Canada is today the third largest producer of diamonds with most of the mines located in the Northwest Territories[21]: the Ekati, Diavik i Snap Lake Mines. The three northern territories of Canada have also been significant producers of gold, lead and zinc over the past 50 year.

Norway is not a significant producer of hard rock minerals although industrial minerals from mining and quarrying are important for this country. In turn, the mining industry is very significant in northern Russia especially in the Kola Peninsula (i.e. iron, copper, nickel, and apatite and nepheline as well as rare earth metals columbium and tantalum), in the Komi Republic (i.e. energy minerals but also bauxite, titanium, gold and diamonds) and in the Republic of Karelia (i.e. ferrous metals as well as iron, titanium, vanadium and diamonds.)

In Finland, the Suurikuusikko gold deposit has a chance to become Europe's leading gold mine. The Talvivaara nickel deposit is the largest of its kind in Western Europe. The Kevitsa mine is another important nickel deposit while the chrome mine east of Kemi Lapland is one the largest chrome producing mines in the world. The Red Dog lead-silver-zinc mine is a particularly important mine in Alaska. It is operated by Teck-Cominco Ltd. under an agreement with the NANA Corporation, one of the Alaska regional native corporations created by the Alaska Native Claims Settlement Act (ANCSA) of 1971.

Producing mines in Greenland include Goldmine Nalunaq. Lead-zinc production occurred at the Black Angel Mine in the years 1970–1990, and feasibility studies continue with respect to its possible re-opening. Today, however, other deposits seem to draw much bigger attention. The ice of this largest island in the world, apart from deposits of oil and gas, covers the riches in the form of iron ore, zinc, and above all rare earth metals.[22] Out of 14 rare earth metals, this area lists as many as nine.

In nature these metals occur in the form of mixed minerals. Lanthanides and Group 3 elements are called rare earth metals because it was thought that they rarely are to be found, but they are more common than previously believed.

The EU companies have to import most of these elements to satisfy their needs. Thus they import beryl, indium, platinum and metalloids: antimony, boron,

[21]The Northwest Territories—Canadian territory located in the central part of the North. It borders with Yukon in the west and Nunavut in the east, and with the provinces of British Columbia, Alberta, and Saskatchewan. The northernmost border is delineated by the shoreline of the Arctic Sea. The territories also include several islands, including parts of Victoria Island, Banks Island and a few smaller ones.

[22]These rare earth metals are indispensable in advanced technology industries. Without them it is impossible to manufacture smartphones, hybrid propulsion systems, superconductors, laser applications, optical fibers or medical magnetic resonance devices. Currently, China seems to enjoy a monopoly of sorts since it has some 35 % of the world deposits of rare earth metals on its territory, and as much as 90 % of supply comes from this region.

tellurium, and from the group of transition metals: cobalt, molybdenum, niobium, rhenium, tantalum, titanium, vanadium, scandium, and yttrium, as well as 15 lanthanides (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium).[23]

During the reign of the former Prime Minister Kuupik Kleist, Greenland issued as many as 140 permits to mining companies, but simultaneously Kleist opposed the exploitation of deposits of minerals containing radioactive substances which occasionally can be found next to rare earth metals. The party of the new Prime Minister, Aleqa Hammond, wants to change that policy and allow for the exploitation of uranium deposits, together with other ores, providing they do not contain more than 0.1 % of uranium oxide.[24] In exchange, however, the party Siumut wants the mining companies to pay immediately for the right to exploit the deposits unlike the party of the former prime minister which intended to tax the companies only after they have registered profits.

The Republic of Iceland is not an important producer of minerals but in recent years it has used its abundant and cheap electricity generated by both hydro and geothermal plants to attract investment in mineral processing. This pertains mainly to the aluminum industry which uses bauxite imported principally from Guinea and Western Australia.

The presented short overview allows for the statement that the whole Arctic zone is rich in oil, gas, and wide variety of minerals. Those riches gradually become the integral part of the world's economy and the global market although in many cases access to them is very limited due to, among others, climate harshness (ice that hinders exploration and development) or lack of appropriate infrastructure. Within relatively short time, however, following the warming of the High North, significant changes are expected to happen. They will be a direct result of decreasing sea ice range and much improved sea and land infrastructure. It may also appear that the Arctic—due to objective difficulties within the field of comprehensive research, exploration and analyses—is simply much underestimated in terms of natural resources, particularly those under the sea bed. Currently, both Iceland and Greenland launched very dynamic programs of identifying crude oil and natural gas deposits in their respective jurisdictions, and it would be much surprising if at least part of this new research did not result in new discoveries.

[23]The European Commission pays great attention to the subject of rare earth metals used in the production of strategic and indispensable goods. For the EU, access to Greenland's deposits may be a salvation from a diktat of China.

[24]More on the subject in Krojna (2013).

5.3 Maritime Transport

The issue as important as offshore resources is in the High North charting new commercial sea lanes between the Euro-Atlantic region and Asia. For a number of centuries people had tried to find a way which would shorten the travel around the globe. From the Canadian side, they searched for the north-west passage which through the Bering Strait would lead to the Orient. In turn, the Russians attempted to find a north-east route. They also attempted to reach the Bering Strait along the northern coastline of Siberia in order to transport their goods to the remotest parts of Asia. "Ice-free" Arctic heralds opening of both of these shipping lanes. A warmer arctic climate, melting ice exposing the ground, thawing permafrost, diminishing sea-ice extent—all these events allow for a better penetration of the region by people and allow using the previously ice clogged and impassable transport routes shortening the distances between Europe and the Far East. This provides a great opportunity for the Arctic countries, but also evokes the interest of the third parties, i.e. the countries outside the Arctic region. For the People's Republic of China, an open Arctic Ocean provides unique opportunities for the development of China's international trade; hence changes in the Arctic landscape will undoubtedly have significant impact on the growing interest of Chinese authorities in the region and for the future development of the economy of this country (Hong 2012). The government of Japan, however, keeps pointing out to the security challenges and limitations resulting from the seasonality of the open sea routes, and claims that all of this will not lead to lowering shipping costs.[25] At the Korean-Norwegian summit, President Lee Myung-bak (the Republic of Korea) admitted: "It takes about 30 days to go from South Korea to Europe by ship, but if Arctic routes are created, I think travel time will be halved. If that happens, economic exchanges between Europe and Asia will become very brisk. In particular, if Norway cooperates with us, Asian routes will be established, which will be very good for its future" (http://barentsobserver.com). Professor Bin Yang of Shanghai Maritime University estimates the route could save his country $60 bn to $120 bn per year (after Byers 2011, www.aljazeera.com). Clearly, the interest of Asian countries in the Arctic is growing because countries like China, Japan, and South Korea are dependent on imports, so the Arctic shipping lanes are of utmost importance to their national interest.

Research on the causes and consequences of global warming has become today one of the major topics not only in earth sciences. Also oceanographers research impacts of the oceans on climate change. Although not all scientists agree, and particularly the conservative meteorologists, among the majority of climatologists the ocean has been upgraded from a passive solar energy storage absorbing the excess heat in the upper layer during summer and releasing emitting in the winter to the active medium intensively transporting heat from the tropics to the polar regions. Grzela (2012) says that "The study by the National Aeronautics and Space

[25]Japan currently operates the icebreaker Shirase II, launched in 2008, which has so far only been used in Antarctic expeditions like its five forebears.

Administration (NASA), published in February 1012, suggests that multi-year ice, which is the oldest and thickest Arctic sea ice and the principal obstacle to shipping in the Arctic Ocean, is disappearing at a faster rate than the younger and thinner ice." The ice-free period along the Arctic's main shipping routes is expected to increase from around 30 days in 2010 to more than 120 days by mid-21st century.[26] Considering the situation, it is hardly surprising that a large number of scientists are of the opinion that under the current trend, the ice may disappear from the North Pole before 2030.

Should the process of diminishing the Arctic sea-ice cover around the North Pole continue at the current pace, within a fairly short time the geography of trade and world powers competition will undergo gigantic changes. Already today great natural riches of the Arctic are much desired by other significant players in the commodity markets and their imagination is fuelled by the vision of new transport routes between Europe and Asia.

Even though in practice it involves a wait of several years, such a development would open for shipping the mythical Northwest Passage,[27] the shortest maritime route leading from the Atlantic through the Davis Strait and the Arctic Ocean, along the northern coast of North America, and then through the Bering Strait into the Pacific Ocean.

"In April 2008, Scott Borgerson, a former Lieutenant Commander in the U.S. Coast Guard, presented to the public a very interesting aspect of the situation in the article titled 'The Arctic meltdown,' published in the renowned *Foreign Affairs*. He described the impact of the fact that Arctic ice cover will decrease this year by 2.5 million square kilometers and for the first time Northwest Passage will become navigable—a fabled sea route to Asia that European explorers sought in vain for centuries, commissioned by the governments, to avoid sailing through African continent around the Cape of Good Hope" (Werz 2008, p. 3).

That way, should the ice melt actually open the sea route in the Arctic, a competitive corridor for the Suez and Panama canals would be created, shortening the distance and time for transporting goods between Asia and Europe, which in the future may be a spectacular change in the global transport.[28]

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[26]In 2011, the navigational season along the NSR lasted 141 days: from the beginning of July till mid-November. See http://earthobservatory.nasa.gov/IOTD/view.php?id=77270. Retrieved August 10, 2012.

[27]The Northwest Passage sea route that connects the Atlantic and Pacific Oceans through the Canadian Arctic Archipelago is marked by 300 years of trying to negotiate it, but all attempts ended in tragedy. Roald Amundsen was the first to cross the Northeast Passage entirely by sea. Should the ice melt continue at a large pace, and large vessels will be able to navigate the Northwest Passage, Churchill, a town on the West shore of Hudson Bay may become one of the biggest oil terminals in the world; see the map in: Geology and Earth Science at http://geology.com/articles/northwest-passage.shtml.

[28]The Northwest Passage through Canada's Arctic islands shortens by ¼ the distance in comparison with the route through the Suez Canal, and by three times compared to the route through the Cape Horn, and is shorter by 4,000 km than the one through the Panama Canal.

It is estimated that in the near future the route will become available for regular maritime navigation, similarly to the Northeast Passage called also the Northern Sea Route (NSR). The latter goes along the northern coastline of Russia, from the Kara Strait to the Bering Strait, and reduces the sailing distance from Europe to Asia by over 33 % (between Rotterdam and Yokohama from 11,894 nautical miles—via the current route, through the Suez Canal—to only 6500 nautical miles). The Northern Sea Route is some 3000 nautical miles long and navigating it all the way is only possible in summer due to meteorological conditions in the Arctic, and even then is not easy.[29] But its importance keeps growing together with climate warming and progressing melting of the ice.[30]

After WWII, for a long time the route was closed to foreign ships. Nearly simultaneously with the political thaw in modern Russia, there came a global climatic thaw which made international commercial use of the Arctic passage possible. The Northeast Passage, in the summer of 2009, was navigated without ice breaker assistance by two German ships[31] Beluga Fraternity and Beluga Foresight[32] as the first commercial journey across Northern Sea Route. They sailed the entire route transporting necessary components for the construction of a power plant from Ulsan in South Korea to the Siberian Novyy Port in the Gulf of Ob. Then, they continued their voyage from Siberia to Rotterdam (Jaworski 2009, pp. 82–83).

The removal of formal barriers was effectively utilized only in 2010 when the first non-Russian vessel, a bulk carrier with non-Russian flag used the Northern Sea Route as a transit trade lane—the bulk carrier MV Nordic Barents. The cargo ship completed an historic voyage transporting iron ore from the port of Kirkenes in Northern Norway to China. The ship set off from the Norwegian Kirkenes on September 4 and reached the Bering Strait on September 15, 2010. Hence it sailed only for 12 days. The cost of the assist of the Russian icebreakers amounted to 146,000 euro. It was still relatively low because it was a service subsidized by Russia which wishes to popularize the route and its commercial use. In 2011, a Russian supertanker, assisted by two nuclear icebreakers, was the first ship to have navigated the Northeast Passage across the Arctic reaching the Siberian coastline.

In connection with the diminishing arctic sea-ice cover around the North Pole, for a number of years the interest in the Northern Sea Route has been growing. In summer and fall, commercial vessels already sail there, assisted by Russian

[29]The Dutchman Willem Barents made three attempts between 1594 and 1596, but made it only as far Kara Sea and died on the return journey. Danish-born Vitus Bering also made an attempt, but did not get farther from Kamchatka than to the strait which now bears his name. Only in 1878 was the Finnish-Swedish geologist, Adolf Erik Nordenskiöld, able to make the first complete crossing of the Northeast Passage from west to east on his Vega expedition, on a 46 meters long barge, tonnage 357, with additional steam engine.

[30]The map illustrating the Northwest Passage and the Northern Sea Route can be found at UNEP/GRID-Arendal, http://www.grida.no/graphicslib/detail/arctic-sea-routes-northern-sea-route-and-northwest-passage_f951.

[31]Vessels owned by the German Beluga Shipping company.

[32]*Foreign Policy* deemed it the most important unrecognized event in 2009.

nuclear-powered ice-breakers.[33] For the first time in the history of the Arctic navigation, a LNG carrier "Ob River" with a freight of liquefied natural gas (LNG) passed through the Northern Sea Route. The ship was accompanied by two escorting nuclear icebreakers, "Vaigach" and "50 Let Pobedy." The "Ob River," a large gas tanker, left Hammerfest on November 7 2012 and two days later was joined in the Kara Strait by the icebreaker "Vaigach." Near the Vilkitsky Strait, both were joined by another icebreaker of Rosatomflot—"50 Let Pobedy." On November 18, the "Ob River" left the NSR. Therefore, it took the LNG carrier 9 days via the NSR at an average speed of 12.5 knots. The tanker carrying about 135,000 cubic meters of liquefied natural gas from the Snøhvit field navigated the Bering Strait and alone reached Japan. The Rosatom (owner of the tanker and the icebreakers) emphasized that the tanker's voyage bodes well for the future deliveries of goods by European companies to Asia through the new route.

On January 15, 2012, the Russian-flagged tanker "Renda" carrying 5 million liters of fuel came to a complete stop just off the coast of Nome, Alaska just a kilometer from the shore. The massive storm prevented Nome from receiving its last barge delivery of home heating fuel, diesel and gasoline for the winter, so "Renda" started on a rescue mission in mid-December and navigated 5000 miles, shepherded through hundreds of miles of sea ice by the U.S. Coast Guard's only icebreaker. The Russian ship made the voyage and the mission proved not only possible but successful.

Undoubtedly, the two sea routes are going to shorten both the distance and time of sailing. 21,000 km separating today London from Tokyo will be cut to some 14,000 due to the shortcut through the Arctic. And the time of voyage from Norway to China will be shorter by 15–20 days because of the Northeast Passage.

It should be noted that until now sea shipping routes through the Arctic Ocean have had an international status. But the "professional" Arctic politician, Artur Chilingarov,[34] presented a draft of a special bill which says that they should be recognized as "a historically developed Russian national transport route through the Arctic" where Russia "… should exercise control over the «ecological situation» in the region and decide through diplomatic channels about the right of foreign navy ships to sail there" (Kublik 2009). Kublik (2009) rightly makes a statement that "Controlling the «ecological situation» in the Arctic, Moscow in practice would decide about the exploitation of the natural resources there."

[33]Rosatom, the owner of the nuclear-powered icebreakers informed that the first in history LNG tanker "Ob River" (previously "Clean Power") sailed through the Northern Sea Route.

[34]Vice President of the parliamentary club of the leading party United Russia, and the polar explorer who placed the Russian flag on the bottom of the ocean at the North Pole.

Global warming opens up new sea routes linking Europe with Asia, which is one more reason why so many countries show so much political interest in the region.[35]

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[35]It should be emphasized that more and more vessels have been testing the new Arctic Route. In 2010, four ships navigated it transporting some 111,000 tons of goods. In 2011, following the outbreak of the Arab Spring, the route has been negotiated by 34 vessels carrying 820,000 tons. And in the year 2012, until November 23, the whole Northern Sea Route have been navigated by as many as 46 ships with 1.26 mln ton of goods. See http://barentsobserver.com/en.

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Chapter 6
The Political Dimension: North European Countries and the High North

Abstract The Nordic states are very active and much engaged members of the Arctic community. Similarly to other Arctic states, they are jockeying for the most favorable position to partake of the new opportunities which are opening in the Arctic part of the High North. The Nordic authorities treat this area with extreme seriousness which translates into actions to develop a comprehensive policy in the region. The prospects set by the Nordic governments were ahead of their time or too far-reaching. However, the plus side definitely was that although the Strategies were dedicated primarily to the existing natural resources there, they treated also on much broader issues than oil and gas. They also deal with ensuring sustainable harvesting of the fish stocks in northern waters, monitoring the state of ecosystems and research studies, strengthening and expanding cooperation with Russia, safeguarding the rights of indigenous peoples, etc. In addition, it is extremely important that together with broadening the issues of the Northern Areas by including onshore land areas (until then, there was a tendency to limit the High North only to marine offshore areas), the governments envisaged the necessity of discussing these issues in the fora of NATO, EU, UN, and in the USA.

Keywords Opportunities and challenges · Nordic countries · Coexistence and knowledge · Russia's policy · Russia in Arctic

6.1 The Norwegian Perspective

Current international order influences the Nordic states more than ever before. Similarly, development and evolution of the international community naturally impacts their cooperation in the field of politics, economy[1] as well as relations with the so-called "close and far away foreign countries." The structure itself and the enlargement of the European Union opened new horizon for cooperation and

[1]See Total Economy Database. January 2008. The Conference Board and Groningen Growth and Development Centre. Retrieved April 08, 2008 from www.conference-board.org/economics.

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_6

introduced new issues to the daily agenda.[2] The diversified activity of the Nordic countries, answering the needs of current issues and facing challenges, is characterized by a great variety and broad spectrum of interest.[3] The activities include cooperation with other regional organizations and programs created by the European Union or engaging it, exchange of viewpoints and coordination of efforts to meet the special challenges of the current time. One of these is certainly the High North, the region of true opportunities but also a possible source of conflicts and problems beyond the borders of the region itself.

In this context, the High North, the area of real opportunities but also of possible frictions and problems reaching far beyond the borders of this region, has brought us a slew of interesting projects, proposals and solutions, both individual and group ones. It might be truly intriguing to examine them from a perspective of the Nordic states.

6.1.1 The Strategic Vision and Plan of Norway

The interests of Norway, a highly developed country, the third largest oil and gas supplier in the world and one of the largest capital exporters, for obvious reasons of disparity cannot be in some areas the same as the preferences of other Nordic states. This country through its NATO membership is in close alliance with the United States which conducts active politics towards the major oil exporters, including Russia. But a historically close alliance with the United States may be in conflict with Norway's global economic interests in oil or gas. It is then in the best interest of Norway to contribute to the understanding and maintaining good relations with Russia as opposed to participating in the criticism of W. Putin by the U.S. administration. This sort of disagreements and problems can easily give rise to misunderstandings and unnecessary frictions, and therefore requires diplomacy and thorough knowledge as well as understanding of other countries' interests. It is even more so as conflict of interests and divergent views on oil and natural gas are really nothing new. In order for Norway to be able to protect its interests and still maintain good relations with the U.S., from the Norwegian side a better understanding of U.S. politics is required as well as a more active presence in Washington, D.C. to make Norwegian views known. It is also important to find support mainly in the oil industry, in the financial sector and the maritime transport sector. Norway is uniquely equipped to act as an intermediary and a bridge-builder between importers and exporters of oil and gas. A Norwegian contribution might help to stabilize the markets and to ease tensions, as well as benefit the trade. In order to be able to play such a role, Norway attempts to conduct an independent oil and gas policy, increase the competence of the Ministry of Foreign Affairs on these issues and improve its dialogue and coordination of activities with the Ministry of Petroleum and Energy, possibly with the participation of Norway's largest companies (Aftenposten 2006).

[2]See Eðvarðsson Runar (2007).

[3]See Ketels (2008).

The Kingdom of Norway, because of its geographic location, has been closely connected with the Arctic from the very beginnings of the state's existence since a large part of its territory is located in the Arctic Circle. In addition, Svalbard archipelago with Bear Island, Jan Mayen Island and the counties of Nordland, Troms and Finnmark located on the Scandinavian Peninsula are also considered Arctic territories.

The foundations of the Norwegian oil and gas policy in the Northern Region were developed towards the end of the 1960s. The delineation of the 200-mile economic zone, due to the discovery of oil and gas, proved to be very advantageous for Norway which has an exceptionally long coastline. The Norwegian coastline is 18,000 km longer than previously calculated as documented by a new map published by the Norwegian Mapping Authority.[4]

Improved measurement technology allowed for totaling the coastal length of all the 240,000 islands that have not previously been included in the official cartography and which are located along the Norwegian coastline in the waters of the Barents Sea, Norwegian Sea and North Sea, and for adding the numbers to the existing data. The precise data have been obtained through aerial and satellite photography.[5]

In the North Sea, the Norwegians have focused on a better use of existing infrastructure and increasing production from the already functioning fields. Mining activity started long before the process of climate warming was observed at the current rare. The Norwegian Sea and the North Sea had at that time rich deposits of energy resources. The economic and political engagement strategy in both areas concentrated on the issues of natural resources exploitation.[6]

All this is happening when large portions of the Norwegian shelf, particularly in the North, have just began to be studied.[7] According to estimates, the largest energy resources on the Norwegian continental shelf exist in the coastal regions off Nordland. Obviously, it is necessary to identify solutions allowing for coexistence between petroleum and fishery activities. According to Statoil-Hydro, significant hydrocarbon resources exist in the Barents Sea, in both Norwegian and Russian waters, where prospecting started as early as 2006.

The exploration activities on these waters, conducted since 1970s, allowed the Norwegians developing efficient and economic extraction methods and technologies,

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[4]Longer borderlines, currently reaching nearly 106,000 km, are the effect of the newest measurements done through satellite technology. The length of the land borderline remains the same and equals more than 2500 km. Norway's total coastline is 103,000 km, compared to the former official figure of 85,000 km.

[5]According to the newest measurements, the Norwegian coastline is two and a half times longer than the perimeter of the globe which at the Equator measures 40,000 km. Canada is a record holder in this respect, with its 244,000-km-long coastline. Data after Haykowski (2011).

[6]The high level of exploitation has recently led to a decrease in the extraction capabilities. The situation is so serious that without the development of new fields Norway may soon be forced to limit considerably its energy production.

[7]NOK 6 million is a petroleum technology assessment project for the Arctic. See Press Release, January 26, 2012, and "Norway to start seismic surveys in the Barents Sea," Press Release No.: 16/12, February 08, 2012.

together with the always important infrastructure of shipping resources to the shore, and their further transport to destination countries. It is then highly probable that due to advanced research projects and the practice established over the years, Norway is able to begin rapidly and efficiently the exploitation of resources located beneath the seabed in the Barents Sea. As writes M. Jarocki, "In this case, naturally, technology alone is not the exclusive factor determining the capabilities of making economic use of the region. The marine mapping process also comes into play together with precise estimation of the size and finding the exact location of the deposits" (Jarocki 2012).

Owing to a very high level of technological innovation of Norwegian companies, the exploration and exploitation activities do not disturb the fragile ecosystems and make coexistence with other economy sectors possible, to mention only commercial fisheries and tourism. The petroleum activities in the Barents Sea, in view of the close proximity of Russia, embody also a foreign policy dimension. The increased oil and gas production from the Norwegian part of the Barents Sea could influence positively the sustainable use of resources, the environment and the Norwegian-Russian cooperation in view of the rapid growth in natural gas production in Norway and the strong growth in demand in European markets. For Norway, it is an opportunity for the development of important projects, e.g. Troll Videreutvilking and others. Aggressive exploration activities facilitate the discovery of new deposits, building the appropriate infrastructure and securing a market demand for Norwegian gas. It is necessary to make use of the existing opportunities.

It should be noted that the high oil and gas prices in the world markets provided an impetus for the petrochemical companies and generated significant increase in economic activity on the Norwegian Continental shelf. A number of projects have been launched, maximizing the efficiency of recovery from the existing fields. The value of investment was much increased by two projects connected with the extraction and transport of natural gas, i.e. Snøhvit located north-west of Hammerfest and Ormen Lange west of Trondheim. Both have invested tremendous money into the onshore terminals in Melkøya and Tjeldbergodden.

Positive developments in the North are of extreme importance not only for Northern Norway but also for the entire country. The Northern Areas have gigantic fisheries resources and hydrocarbon deposits. It is also there that climate changes are most perceptible. The government had every reason to be satisfied when presenting the management plan for Northern Areas to the Storting (*St. Meld. nr 8 Helhetlig forvaltning av det marine miljø i Barentshavet og havområdene utenfor Lofoten*—Report No. 8 to the Storting, Integrated Management of the Marine Environment of the Barents Sea and the Sea Areas off the Lofoten Islands).[8] For the first time ever, such an extensive and comprehensive document was prepared in Norway, which deals with the issues in a holistic manner and touches upon all possible aspects of the matter, i.e. environmental issues, natural resources, and transport problems. The document is all the more significant as it is the result of a

[8]The Management Plan for Northern Areas, prepared by an international working group, was presented in the Storting on March 31, 2006.

compromise reached in the extremely difficult negotiations with the coalition partners. In the opinion of the Norwegian Ministry of Foreign Affairs, the key elements of the Government's plan are contained in two words: **coexistence** (ecological values and extraction activities) and **knowledge** (comprehensive knowledge of the specificity of the region, its identified needs and conditions, and awareness of the necessity of further research).

According to the provisions of the Plan, no area of the Barents Sea is protected indefinitely against extraction activities. A few months later (in December 2006), the Norwegian government issued another document as a response to new circumstances, i.e. The Norwegian Government's High North Strategy. The document presents a framework for action and the priorities in administering the Northern Areas:

- strengthening Norwegian presence in the Arctic region through a credible, responsible, prudent and predictable way of action;
- the document acknowledges Norwegian ambitions aimed at becoming regional leader of regional cooperation, strengthening knowledge building and research in and about the High North, and its dissemination at national and international levels;
- the document contains a declaration on the sustainable use of natural resources with due respect paid to natural environment, as well as the obligation to safeguard indigenous Arctic communities, their livelihoods, traditional lifestyles and culture;
- special attention has been assigned to relations with the Russian Federation and emphasis put on the need for stronger ties by defining them as of key role for the implementation of the Norwegian policy. The core objective was identified as sustainable growth and development of the High North while the main means of attaining it was to be a dialogue with international partners (Norway's Strategy 2006, pp. 7–72).

This perspective also points to the issues of maritime transport safety and attaches special importance to limiting, preventing and reducing the risk of maritime pollution and accidents, the safe transport of fuels, and to improving safety standards for ships in case of increased extraction activities in the North. The plan also establishes mandatory routes for ships outside of Norway's territorial waters to improve the monitoring and control of maritime traffic in the North, and calls to life the vessel traffic service center in Vardø.[9]

All of the above was not possible without confrontations with environmental groups for whom any threat to the local ecosystem was synonymous with banning any extraction activity. Moreover, there were many differences of opinion between the authorities and scientists from the capital and the local administration as well as

[9]All of these requirements should substantially improve the maritime transport safety as well as safeguard the environment against oil spills.

local businesses situated in the North. The last group advocated a much bolder approach in the plan of action (even further to the north).[10]

Today, in retrospect, one could say that both the government and the presented project were lacking international partners who would regard the cooperation with Norway beneficial for themselves (in accordance with Norway's terms). No foreign country, even within the EU characterized by such a high demand for energy, agreed with Norway's position, for example, on its rights to the maritime zone around Svalbard.

One could have a feeling that the prospects set by the government were ahead of their time or too far-reaching. However, the plus side definitely was that although the Strategy was dedicated primarily to the existing natural resources there, it treated also on much broader issues than oil and gas. It also dealt with ensuring sustainable harvesting of the fish stocks in northern waters, monitoring the state of ecosystems and research studies, strengthening and expanding cooperation with Russia, safeguarding the rights of indigenous peoples, etc. In addition, it is extremely important that together with broadening the issues of the Northern Areas by including onshore land areas (until then, there was a tendency to limit the High North only to marine offshore areas), the government envisaged the necessity of discussing these issues in the fora of NATO, EU, UN, and in the USA.

On 12 March 2009, the Prime Minister of Norway Jens Stoltenberg, expanding and supplementing the existing Strategy, presented *Nye byggesteiner i nord. Neste trinn i regjeringens nordområdestrategi*—New Building Blocks in the North, The Next Step in the Government's High North Strategy (www.regjeringen.no). The document maintained the same spirit and the path, placing particular emphasis on measures to be applied by Norway in the High North. In view of greater challenges related to climate and environmental change, it emphasized:

- the necessity of strengthening marine environmental protection and monitoring its changes, together with an expanded capacity to respond to the threats posed;
- the sustainable extraction of crude oil from beneath the seabed, respectful of the environment, and protection of renewable resources which are of great importance from a Norwegian point of view;
- development of tourism industry, related business and its infrastructure in a manner that minimizes the impact of its activities on the surrounding environment;
- safeguarding the rights of indigenous communities, their traditional language, traditional way of life and culture, especially with regard to the Saami people;
- the key elements of the Government's High North Strategy were also to improve border control procedures and increase their efficiency, and the cooperation between Norway and its neighbors, with special emphasis on the Russian Federation (New Building 2009, pp. 8–44).

[10]This sparked a heated debate on the prospect of eventual offshore exploitation of hydrocarbons in the Lofoten Islands region. Doyle et al. (2013).

The afore-mentioned documents clearly evidence that Norway attaches great importance to maintaining, securing and strengthening its presence in the High North. For a country with such strong ties to the region it is of key importance. It may also be perceived as admirable prudence and a clear indication of a coherent strategy by social democrats regarding Norwegian presence in the Arctic region by assigning special importance to the Northern Areas (Czarny 2009, p. 160).

A comparison of the two mentioned strategies allows noticing at least one, but a very important difference. The document dated to 2009 places much greater emphasis on research and assessment of climate changes and the impact of climate changes on the environment. It also advocates the necessity of establishing the Centre for Ice, Climate & Ecosystems (ICE) in Tromsø, as well as declares to increase knowledge on climate changes and to introduce other necessary measures for monitoring the human activity and its impact on the ecosystems in the Arctic (New Building 2009, pp. 8–10). It is a clear testimony that the Norwegian authorities note the threats of climate warming in the High North and realize that mitigation of its impacts is of vital necessity.

All Norwegian documents on the Arctic share some common features and these are the necessity of maintaining good relations with the Russian Federation and developing cooperation with it in protection and sustainable exploitation of natural resources. The attitude towards Russia is obvious for reasons of geography; it is one of Norway's closest neighbors, which makes it an active and very important player in the international relations of the region. Both countries share a long common maritime border in the Barents Sea and the issue of its accurate delineation used to be a subject of dispute between the two countries.[11]

Governmental research and development program on the Northern Areas, a.k.a "Barents 2020," is intended to function as a link between international centers of expertise, academic institutions and business as well as industry organizations in various countries that are interested in the High North. At the center of the program there lie: the development of extraction technology and projects aimed at the knowledge-building and enhancing the knowledge on environmental protection, and sound resource management in the High North. A significant role is assigned to the cooperation between communities. The Northern Areas are becoming new and very important European energy regions. Decisions made by Norway and Russia on exploration of oil and gas in the Barents Sea are followed with great interest all over the world. Regardless of Norwegian decisions, the Russians sooner or later will launch large-scale oil and gas extraction activities. It is of utmost importance that Norway participates in it which in turn will force Russia to operate in accordance with the highest standards of environmental protection, using the best available

[11]In Murmansk, on September 15, 2010, Foreign Ministers of Russia and Norway signed the treaty on maritime delimitation and cooperation in the Barents Sea and the Arctic Ocean. Signing of the agreement ended a 40-year-old territorial dispute between the two countries at the same time reducing tension in the region and opening the way for development of the potential natural resources. See http://www.osw.waw.pl/pl/publikacje/analizy/2010-09-22/rosja-i-norwegia-ustalily-granice-morska.

technology. It is exactly Norway's petroleum activity in the North that has the best world environmental and safety standards. The bilateral cooperation with Russia is of decisive importance in combating environmental crime and illegal fishing, the more so as the observed climate changes will undoubtedly become a challenge for the natural environment all over the globe. As climate changes are more apparent in the Arctic than anywhere else, they will have an impact on the living conditions of the indigenous populations in the Northern Areas. In the existing situation, there is an urgent need for taking a holistic approach to the issues of environment, economic development and governance. Policies regarding the Northern Areas must be based on the principles of cooperation and dialogue with other countries in the Arctic region.

6.1.2 The Kingdom of Denmark as an Arctic State

The Kingdom of Denmark is involved in the problems of the High North by way of Greenland which is its autonomous territory. Greenland (Kalaallit Nunaat in the Greenlandic language) is the biggest island in the world with an area of 2,175,500 km out of which only 19 % is ice free. It is inhabited by 55,000 people; the biggest settlements are the capital and administrative center Nuuk (Danish: Godthab, 14,000), Sisimiut (Danish: Holsteinsborg, 5200) and Ilulissat (Danish: Jakobshavn, 4100). Greenlanders make up the decisive majority—82 % (of the Inuit and European ancestry), and the remainder of the population is composed either by the Inuit natives or the immigrant Danes (Kubiak 2012, pp. 113–114).

In terms of territory, Denmark does not geographically belong to the Arctic but in spite of ongoing negotiations it still represents the people of Greenland which is a part of the Kingdom of Denmark. Although the island is an autonomous country within the Kingdom of Denmark, Denmark remains responsible for foreign affairs of Greenland which is situated between Russia and North America.[12]

The functioning arrangement is connected with the discovery of reserves of natural resources in the waters around Greenland. This obviously caused the rise of separatist sentiments among the island's population which resulted in a referendum on greater autonomy held on November 28, 2008. As much as 75 % Greenlanders voted in favor of expanding the autonomy, with a 72 % turnout (Czarny 2009, p. 137). The results, however, are non-binding as the government in Nuuk had been granted practically full freedom to decide on the internal affairs of Greenland. Nevertheless, the outcome clearly proved the independence drive among Greenlanders. Today, such a full sovereignty would be financially unsound as Greenland has received regular subsidies from Copenhagen but there exist estimates that predict such a necessity might cease to be valid after 2015 (Finnsson 2010).

[12]The island is of geostrategic importance. In 1979, Greenland gained autonomy within Denmark and in 2009 the extensive home-rule powers of an independent state (with the exception of foreign affairs, security and financial policy).

One cannot rule out a possibility that following further climate warming, which will provide easier access to oilfields, Greenland might in the future fully separate itself from the Danish Crown. Currently, there seems to exist a prevailing view that such a state would be too weak to effectively secure its rights in the international arena.[13] The nearest future will probably bring an answer on the independence of Greenland.[14]

It is not out of the question that in the future Greenland may strive for full sovereignty and only keep the Danish monarch as head of state. It would also mean assuming full control over the Arctic matters.[15] Before it happens, however, people of the island have to deal with several internal problems present there: of economic (among others with the budget deficit which would have surpassed annually 30 % of GDP if not for the subsidies from Denmark and the EU[16]) and social nature. Today, the islanders, in order to function as a modern state, require qualified work force from the outside, which at least partially explains why they still remain a part of the Kingdom.

In spite of the great distance from the metropolis, Greenland in the recent years has received special attention in Copenhagen both due to the changes occurring in the island's climate and the discovery of crude oil deposits[17] whose extraction may in the future prove to be a great chance for the whole country.

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[13]Opponents of such reasoning bring the examples of some Arab states from the period preceding the oil boom, which at the time also used to be weak, sparsely populated and had practically no arable land.

[14]It should be stressed that this question remains open in academia due to the fundamental issue of what is going to happen next in terms of climate changes. See Greenland's mineral rush could lead to independence, EurAcitiv. Retrieved May 10, 2012 from http://www.euractiv.com/specialreport-rawmaterials/expert-foreign-interest-greenlan-news-514011.

[15]Should it happen, Denmark without a territory in the Arctic would be obliged to leave the Arctic Council and Greenland would take its place there.

[16]Since 1985, Greenland and the European Community managed to strengthen the ties through the Greenland Treaty which took on a more meaningful shape in 2006. The signed partnership is based on "a close relationship between the parties due to the historical, political, economic and cultural ties between them." The agreement provides for a continued financial assistance from the European Union (38 M euro in 2008) to be used for the development of various sectors in Greenland: scientific research, education, industry, and fisheries. In exchange, the EU obtained an increase in its fishing rights over the island's territorial waters.

[17]The Scottish oil producer Cairn Energy announced in September 2010 it had found significant oil and gas reserves in waters off the coast of Greenland. The assessment carried out by U.S. Geological Survey indicates that northeastern Greenland may be a very important future petroleum-rich region. The projected oil and gas reserves rank the northeastern Greenland 19th out of the world's 500 known petroleum provinces. It is estimated that some 31 billion barrels of oil and gas can be found off the coast of Northeast Greenland and ca. 17 billion barrels of oil and gas in the western part of the island. In addition, Greenland is also rich in mineral deposits, including zinc, copper, nickel, gold, diamonds and platinum. Moreover, it has substantial deposits of so-called critical metals, including the rare-earth elements which are important components of high-end technology, comprising green energy technologies. See Gautier, D. L. *U.S. Geological Survey*, Menlo Park, California, Oil and Gas Resources of Northeast Greenland. In: http://www.geoexpro.com/sfiles/2/12/9/file/oilgasgreenland56_60.pdf. Retrieved January 05, 2012.

The discovery of offshore hydrocarbon reserves obviously results in increased interest of the authorities in Copenhagen in this area which still belongs to Denmark. Even if Greenland's Self-Rule Government in Nuuk takes over the lion share of the revenue derived from the exploitation, Denmark still has a chance to diversify its supplies of energy raw materials which will make it less dependent on the outside suppliers and improve the energy security of the country. But the possible full sovereignty of Greenland still remains an open question.

For the time being, Denmark concentrates on strengthening its political and military presence in Greenland, fully aware that only a balanced budget on the island may be the ultimate trump card for the advocates of sovereignty, and so far nothing seems to allow for it, particularly in view of the problems connected with the exploitation of the deposits.

Denmark, including Greenland, is a very active and much engaged member of the Arctic community. Similarly to other Arctic states, it is jockeying for the most favorable position to partake of the new opportunities which are opening in the Arctic part of the High North. The Danish authorities treat this area with extreme seriousness which translates into actions to develop a comprehensive policy in the region. In May, 2008, the Ministry of Foreign Affairs of the Kingdom of Denmark published a document which comprised several key issues in the Arctic. One year after that, at the sixth Ministerial Meeting in Tromsø, Norway,[18] Denmark assumed chairmanship of the Arctic Council. During its presidency, Denmark followed the guidelines set up by the Norwegian chairmanship.[19]

The situation turned a trifle awkward when in May 2011 the press leaked a draft document of the Danish government stating that "the Kingdom of Denmark is expected to claim the continental shelf at five sites around the Faroe Islands and Greenland including some parts of the North Pole" (Spongenberg 2011).[20] In her comments, the Danish Foreign Minister Lene Espersen stated later that there was nothing new in the Danish claims and that the North Pole was not "a goal in itself but that the cartographic point which simply happens to fall well within Denmark's claims to its continental shelf" (Spongenberg 2011). She pointed out, however, that it was Denmark during its presidency that encouraged other member states to share their experiences in development and implementation of the local adaptation strategies for the Arctic region and introducing local projects in reduction of

[18]The chair of the AC rotates among member states every two years. So far the following countries presided the Council: Canada (the Council's inaugural meetings in Iqaluit in 1998), the United States of America, Finland, Iceland, Russia, Norway, Denmark: 2009–2011, and Sweden: 2011–2013.

[19]It was agreed upon then that achieving the main goals for the Arctic took more than two years during which the presidency is held. Therefore, three Nordic countries, Norway, Denmark, and Sweden, decided to ensure the continuity of the work of the Arctic Council among others through identifying a common set of priorities for three successive chairmanships. More on the subject at: http://www.arctic-council.org/index.php/en/about-us. Retrieved May 07, 2012.

[20]It was reiterated by the Danish paper *Dagbladet Information* on October 30, 2012.

greenhouse gas emissions, assessment of best practices in this regard, as well as the development and use of renewable energy sources in the Arctic.

A logical consequence of the Danish way of perceiving the issues of the High North and simultaneously an answer to the current and future challenges posed particularly by the Arctic was the Kingdom of Denmark Strategy for the Arctic 2011–2020 (Denmark's Strategy 2011), prepared jointly by the governments of Denmark, Greenland, and the Faroe Islands. Its main pillars are: peaceful, secure and safe Arctic, self-sustaining growth and development, development with respect for the Arctic's vulnerable climate, environment and nature, and close cooperation with the international partners.

They define the following guidelines for conducting a common policy in the North:

- its base is the international law (the UN's Convention on the Law of the Sea in particular) and international organizations constitute a very important forum for mutual cooperation;
- due to the geographical location, one of the most vital tasks is assuring maritime safety, both through the warning systems and effective search and rescue services;
- a significant role is played by the Danish Armed Forces whose continued presence on the island is the best safeguard of its sovereignty; therefore, they will be reinforced by the establishment of a joint task force composed of the troops from Denmark, Greenland, and the Faroe Islands, prepared to operate in harsh Arctic conditions[21];
- the necessity of following high standards for the exploitation of mineral resources has been announced to assure that the natural environment will not be damaged and the society of the island could maximally benefit from the exploitation of natural resources[22];
- the use of renewable energy sources in generating electricity;
- sustainable use and management of living resources through prevention of excessive whaling, hunting and fishing;
- establishing stronger trade integration with the rest of the world;
- growth and development based on knowledge, with special emphasis on research on climate change in order to prepare for its impacts and challenges. The Arctic environment must be soundly governed with care and sensitivity to environmental concerns; the key importance in environment and biodiversity

[21]The document treats on the growing importance of the Arctic for Denmark's defenses. Danish vessels want to have access to diesel fuel and other supplies at the U.S. base in Thule, located in north-western Greenland, which would enable them to sail further to the north.

[22]Provisions allowing for further oil exploration activities in Greenland are also included in the strategy. The interested companies ought to comply with essential environmental protection standards as set or legislated by the autonomous government of Greenland which will be offering additional licenses for prospecting and exploration of oil and gas in after 2012.

protection lies with the international cooperation and thorough and reliable scientific research;
- special role is assigned to the recognition of indigenous peoples' rights to protect their cultural identity and way of life;
- in order to follow the guidelines properly, a special steering committee was established, consisting of high-ranking government representatives of Denmark, Greenland, and the Faroe Islands.[23]

The above Strategy proves the will to conduct a well-thought-out and responsible policy towards the Danish part of the High North. It is also an answer to the new challenges posed by climate changes, and describes ways or means the three parts of the Kingdom (Denmark, the Faroe Islands and Greenland) wish to implement to maximize the chances (mainly the possible exploration of oil fields) and effectively mitigate the adverse effects. Given the current situation, it may prove paradoxical that the described opportunities and chances may herald the beginning of an end to the Kingdom of Denmark as we know it today.[24]

6.1.3 The Arctic Strategy of the Kingdom of Sweden

Not too many people associate Sweden with a country located in the High North although the state has been closely linked to the Arctic since the medieval times. Sweden is a member of the Arctic Council and half of its northernmost province Norrbotten extends above the Arctic Circle. Also the province of Västerbotten has equally subarctic climate. These regions are for the most part inhabited by the people of Saami, considered one of the main indigenous communities in the Arctic. At a seminar in the Swedish Parliament (April 2011), Gustaf Lind, Sweden's Arctic Ambassador, presented the Swedish strategy for the Arctic. The climate and the environment, economic development and the human dimension are the most important points in the new strategy, which has not yet been officially launched in its entirety. The Swedish Arctic Ambassador described the Nordic Council as a major player making it clear that increased collaboration is important both within the Arctic Council and between the council and other organizations. He also stressed that the Nordic countries cooperated on Arctic issues, both at government

[23]See *Denmark, Greenland and the Faroe Islands: Kingdom of Denmark Strategy for the Arctic 2011–2020*, Copenhagen 2011.

[24]D. Degeorges, a specialist in Greenland's issues, claims that the strategic territory, four times bigger than France, populated by some 57,000 people, and located in the very heart of the Arctic will attract those who have money; after: Grenlandia: arktyczne oko Europy zamyka się, src = 'http://ads.cafebabel.com/www/delivery/avw.php?zoneid=33&cb=15553621136&n=a0d02fa1'border=0'alt='/>. Retrieved April 03, 2013. Those who understand the interests of the explorers and international companies as regards the energy potential of that region, mostly North-American ones, have no doubt that Greenland will somehow free itself from the historical links with the Old Continent.

and parliamentary levels. Karin Åström, Chair of the Nordic Council's Swedish delegation, pointed out that "The Nordic countries' interests do not always coincide in the Arctic. For example, Norway and Greenland have an interest in exploiting oil and gas resources in the region and in Sweden there are plans to increase mining. What we have in common is that we want the resources to be extracted in an environmentally responsible manner and that the population of the region will play a role" (www.norden.org).

Sweden's assumption of the chairmanship of the Arctic Council coincided with the preparation of the new Swedish policy for the Arctic. Decision-making bodies were of the opinion that the policy should acknowledge the Arctic Council as a key player whose mandate should be broadened. Among the priorities of its presidency, Sweden included the issues of transport and communications in the Arctic and an awareness campaign to create a factually based perception of the Arctic among the general public and decision-makers, as well as information on the direction the activities of the Arctic Council should take.

A panel of representatives from science, industry, indigenous people and cultural life commented on the overall presentation of the upcoming Swedish strategy. The panel has made a statement that the human dimension is of utmost importance and people who live in the Arctic should be able to continue to live and work there. Otherwise, it might result in unfavorable phenomena critical to the region's future. The Saami Parliament's President, Ingrid None, wants to see a new leadership in the Arctic, which allows the indigenous people real participation. She also said the following: "The eight states of the Arctic Council must work with indigenous organisations, a formalized co-operation is essential" (www.norden.org). Professor Peter Sköld (www.norden.org) reiterated the sentiment by stating the following: "The area of the Arctic should be just as much a subject as an object; there must be no question of any form of colonisation. Those who live there have to be heard and have influence."[25]

On 12 May 2011, Sweden took over the two-year Chairmanship of the Arctic Council and in this role started realizing the Arctic Change Assessment,[26] a research project analyzing the impact of both climate change in the Arctic and the increased economic activity in the region. Sweden also decided to examine how to minimize the adverse effects of climate change and the possibilities of strengthening Arctic's capacity for adaptation and recovery from the effects.

The activities of the Kingdom's authorities clearly show that the debate on the issues in Sweden is ongoing and becomes a heated one. Carl Bildt, Minister for Foreign Affairs, diplomatically states that the protection of the environment must take precedence over the exploitation of natural resources in the region. Some Swedish politicians oppose vehemently using the sensitive and vulnerable Arctic

[25]Peter Sköld, professor at Umeå University (Sweden), works at the Centre for Saami Research.

[26]On November 8, 2004, Arctic Climate Impact Assessment was published. It was developed by an international group of 300 scientists and experts. The key conclusion of the document predicts Arctic's warming to happen twice as fast as the other region of the globe. Compare: *Climate Change 2007—The Physical Science Basis*, IPCC, Paris, February 02, 2007.

ecosystem and warn Carl Bildt against "running errands for oil barons"[27] as supposedly was the case during the Swedish chairmanship.[28]

All of the above made the Swedes address three key thematic issues for the future of the Arctic in their strategy:

- climate change and warming;
- increase in transport possibilities between the Atlantic and the Pacific;
- the possibility of extraction of natural resources.

The order of the issues itself is much telling and interesting, starting with the least controversial one which is basically accepted by all the countries. The order is no coincidence but, in my opinion, it reflects a long functioning, inherent and traditional way of conducting foreign policy by the authorities of this country.[29]

Therefore, it should be no surprise that although Sweden does not border the Arctic Ocean (or as others put it—does not have polar bears living in the wild), it has every reason to be at least interested in the development of the situation in the region. Such an attitude was expressed in the document called Sweden's Strategy for the Arctic Region (Sweden's Strategy 2011) prepared by the Swedish Ministry of Foreign Affairs in 2011.

The main points of the document are as follows:

- For the Kingdom of Sweden, the main priority in the Arctic Region is promoting international cooperation among the states within the framework of existing international organizations, and the Arctic Council in particular. Equally important are also a development and expansion of the Northern Dimension, as well as constant care of the Nordic Council paid to the problems and challenges of the region. As a member of these organizations, Sweden obliges itself to implement the afore-mentioned actions providing all of them are in accordance with international law (Sweden's Strategy 2011, pp. 18–22).
- The issue of climate change has been noted and recognized as the key one for the future of the High North.[30] The Arctic is one of the world's most vulnerable areas in the world in terms of possible effects of climate change. Therefore, a cooperation of all concerned countries is essential in order to assure constant monitoring of natural environment and preventing unfavorable tendencies affecting the biodiversity of the region. Reduction of environmental pollution must not be

[27]In the original: "Gå inte oljebaronernas ärenden, Carl Bildt."

[28]As mentioned in the statement of Åsa Romson, Spokesperson for the Green Party, and Isabella Lövin, Member of the European Parliament (MEP). Quoted after: Franchell, E. En region under isen, analysnorden. June 09, 2011. Retrieved May 19, 2012 from www.norden.org.

[29]See Czarny (2002).

[30]In the strategy, the region in question is sometimes referred to as the Arctic region, sometimes as the Arctic and sometimes as the Arctic area. In describing the Nordic countries' part of the Arctic (including in the context of regional cooperation with Russia), the term *High North* is sometimes used as well.

forgotten as the damage wrought by it affects not only the environment but the communities of the region (Sweden's Strategy 2011, pp. 24–29).

- Sustainable development is the key for the economic prosperity of the region. Therefore, Sweden wants to promote it economically, socially and environmentally. It is of utmost importance that the use of the energy resources, both renewable and nonrenewable, be done with respect to all these aspects and in observance of international law. Trade barriers should be lifted as they hamper the economic development of the Arctic. Development of tourism and infrastructure (and maritime transport in particular) must also be in line with the strategy for sustainable development (Sweden's Strategy 2011, pp. 30–38).
- The Arctic communities should be specially protected, and particularly the indigenous people of the Arctic. Climate change negatively impacts the livelihoods of indigenous peoples so it must be combatted, and should it prove impossible, these communities' ability to adapt to new conditions must be improved. This particularly pertains to the Saami people. Sweden fully intends to cooperate closely with the Saami Parliament on the preservation of the Saami language, culture and the traditional lifestyles. It should be added that such indigenous communities are more vulnerable to environmental changes than the industrialized ones (Sweden's Strategy 2011, pp. 41–47).

So the Kingdom of Sweden in its policy towards the High North concentrates on supporting international cooperation within the framework of existing fora in the field of exchange of ideas and views, and developing joint actions, and in the Arctic Council in particular. The awareness of the existence of climate change influences Sweden's policy which advocated promoting joint actions on mitigating and combating effects of the climate changes that may in the future prove disastrous for the environment and indigenous communities. Sweden's strategy for the High North exhibits concern for the environment and the society of the Arctic. There is no doubt that the government realizes the challenges posed by climate change and attempts to adapt its policy accordingly. Lacking direct access to the Arctic Ocean, which excludes it from political claims to the areas around the North Pole, Sweden recognizes the phenomena which are regrettably not necessarily noted by other countries. It adamantly states that climate changes not only create opportunities for the economy, but also pose a serious threat to the traditional lifestyles of indigenous peoples in the North, which may have catastrophic effects for the future generations inhabiting this territory.

6.1.4 The Republic of Finland and the Developments in the High North

The Republic of Finland, just like its neighbor the Kingdom of Sweden, is not bordered by the Arctic Ocean. However, the experts claim that the lack of national interest in the debate on the Arctic Ocean and governing the deposits makes Finland

and Sweden natural and neutral mediators and intermediaries in this area. And indeed, Finland for a long has served as an intermediary between the Arctic Council and the European Union. Today, its territory is the seat of the new EU Arctic Centre, and Helsinki has recommended for a long time for the European Union to be granted the status of a permanent observer at the Arctic Council.[31]

Although this country is rarely mentioned among the states most active in the High North, it must be stressed that a part of the Finnish territory belongs to the Arctic area, namely the lands located north of the polar circle which runs about through the middle of the biggest Finnish region called Lapland.

Finland is also a member of the Arctic Council and plays an important role there together with the other Nordic countries. In its perception of the Arctic problems in the political, economic, environmental and social area, it takes the position close to the one held by Sweden. The broadly understood policy objectives of this country include also declarations about maintaining special relations with the Russian Federation, which among others results from being a close neighbor, and perceiving energy exploration in the High North (in spite of the lack of deposits within the borders) as an economic chance for Finland as well.[32] This country also tries to assign a more active role in resolving the High North problems to the European Union which clearly improves the Finland's standing both in the region and the Union itself.

One more similarity linking Finland with other countries of the region is preparing its own Arctic strategy. Published in August 2010, Finland's Strategy for the Arctic Region (Finland's Strategy 2010) is a reflection of the country's comprehensive approach to the problems of the High North. The following objectives of the strategy require particular attention:

- The environmental perspective is among the key considerations in Finnish policy towards the High North and should be taken into account in the planning and implementation of all other actions. As the Arctic environment is highly exceptional and extremely sensitive, with the unique flora and fauna, it is particularly vulnerable to pollution and adverse effects of climate change. The developments in the Arctic region will be reflected in other areas and have a global impact, hence efforts must be continued to expand knowledge of the current natural environment of the High North. Should the need come, people must be prepared for the risks of pollution the more so as the threat is related to the growing human presence in the region. One more aspect of intensified human activities, and often disregarded, is the radioactive contamination risk which still remains an unsolved problem, particularly on the Kola Peninsula.[33]

[31]Regrettably, it neither gained this status in Nuuk or at the latest meeting of the Arctic Council in Kiruna.

[32]It is a great chance for the Finnish technological applications and innovations. Finland possesses diversified Arctic expertise and Arctic knowledge.

[33]Finland's Strategy for the Arctic Region (2013) Helsinki: Government resolution on 23 August 2013, pp. 13–16.

- Finland aspires to the role of an expert in the Arctic know-how to which, apart from real experience, it is entitled through a unique position to allocate funding for education, research and development of new innovative technologies. The state supports also the exploration and exploitation of natural resources in the Arctic conducted by own enterprises. The investment into the Arctic prospecting and exploration of oil and natural gas deposits, and what is worth of note—a foreign investment allow Finish companies to apply their knowledge in the Polar Region and further the development of industry[34] and services sectors.[35] Therefore, investing is of such importance as well as focusing on the key issues which are:
  - The development of transport, communication and logistic network infrastructure in Finland's northern areas is one of the main tasks presented by the Finnish government in the document. It is of key importance, should Finland wish to play a significant role in the exploitation of hydrocarbon deposits in the Barents Sea. The possibility of the opening and actual operational use of the Northern Sea Route for longer periods in the year than now provides an additional opportunity for the entire region. However, it is inextricably linked to the necessity of assuring safety and security of navigation not only for the seafarers but also for the natural environment. In the case of an oil spill from a damaged tanker ship or damaging a drilling or extraction rig, the capabilities of preventing an environmental disaster in the stormy and cold waters of the Northern seas are minimal given the current state of the technology.[36]
  - The rights of indigenous peoples must be respected and one of them is the right to determine their own destiny. Climate change and environmental pollution strongly affect these communities. The Saami constitute the largest group of indigenous people in the Finnish High North and the cooperation with them is to safeguard their tradition, culture and the language.[37]
  - The role of the Arctic Council is crucial as Finland will seek to make it the main forum of addressing and resolving the issues facing the region, and will attempt to extend the Council's agenda. The Law of the Sea should be the basis for the settlement of territorial disputes in the Arctic.[38] As for bilateral cooperation, the main focus is assigned to the relations with Russia and Norway.

[34]Finland is, for example, a producer of the best wind turbines operating in cold climate temperatures.

[35]Hence come huge investments in education, training and research allowing educating future employees, and research and evaluation of changes in the Arctic region. See Finland's Strategy for the Arctic (2013), pp. 18–23.

[36]See Finland's Strategy for the Arctic (2013), pp. 24–29.

[37]See Finland's Strategy for the Arctic (2013), pp. 30–33.

[38]See Finland's Strategy for the Arctic (2013), pp. 34–35.

– The European Union as one of the most important actors in the region and the role of the Union should be strengthened, among others through the efforts of Finland aimed at increasing its engagement in the Northern Dimension and particularly in the Arctic Window which is entirely devoted to the High North.

It should be noted that the afore-mentioned objectives are supported by the proposals for concrete actions which are necessary for achieving these goals. Some of them are as follows:

- launching an Arctic research program under the auspices of the Academy of Finland (The Finnish Society of Sciences and Letters), focused on a broad-based interdisciplinary approach and international scientific cooperation;
- promoting exports to the Arctic within the National Strategy for Promotion of Exports and Internationalization;
- transferring to the Arctic Ocean the best maritime practices developed on the Baltic Sea;
- introducing regular meetings of the representatives of the Council Member States and expanding both the Council's operations to new sectors and the number of new permanent observers into the Council;
- strengthening the Cooperation Office with Russia in Murmansk.

Due to the similarities of roles and positions of the Republic of Finland and the Kingdom of Sweden in the High North, it is hardly surprising that the strategies of the two countries share many common characteristics. Both stress climate change effects in the Arctic and both put less focus on political issues, emphasizing protection of the environment and biodiversity, scientific research to increase our understanding of the bio- and geosphere,[39] the rights of Indigenous Peoples, development of international cooperation, and peaceful settlement of territorial disputes. The Finnish government has identified additional opportunities connected with the beginning of the exploitation of natural gas and oil fields in the Barents Sea and fully intends to utilize them. In order to achieve this goal, it has decided to develop scientific research, and invest in education and technology infrastructure (Sustainable Dev.). All these, combined with the Finnish Arctic expertise, are to assure Finnish economic success in the era of changes in the High North.

6.1.5 The Republic of Iceland and the Arctic

Iceland[40] is a member of the Arctic Council and due to the opportunities that may arise, there is a lively Arctic debate in this country. Because between Iceland and

[39]See Wallin (2008).

[40]The Republic of Iceland is located in its entirety on the island bearing the same name in the North Atlantic, 800 km from Scotland and 287 km from Greenland, 970 km from Norway and

the Arctic the exclusive economic zones of Greenland and Norway are located, it is rather unlikely for the Icelanders to participate directly in exploration and exploitation of natural resources in those zones. Nevertheless, Icelanders are hoping they could be assigned part of the fishing quotas in the region as the warming climate encourages a migration of certain fish species to the North. Today, it would be difficult to talk about the overall consensus on assessing the dynamics of climate change processes but there is an agreement on the approach to the High North issues and the Arctic in particular as part of the international political game. Such an opinion is confirmed by the history professor Valur Ingimundarson, one of Iceland's leading experts in international relations, who pointed out that the five coastal states: the United States, Russia, Norway, Canada and Denmark had met in Ilulissat[41] and adopted some findings without any consultation with Iceland, Sweden, Finland or the representatives of the indigenous peoples of the Arctic. Professor V. Ingimundarson also points out that in spite of climate changes, much of the Arctic Ocean remains covered by ice throughout the year and therefore warns against an uncritical approach to the alleged possibilities of navigability of new shipping routes and a potential for an increase of trade. Former Minister for Foreign Affairs of Iceland, Össur Skarphéðinsson, is of a completely different opinion after his return from a meeting of the Arctic Council in Nuuk, Greenland in May 2011. As a biologist by education, having examined the research findings made available Hillary Clinton[42] who was present in Nuuk, he stated in the interviews that the Arctic sea routes were opening up earlier than previously expected. This heralds new opportunities for the Icelanders but also increases the risks. The increase in commercial maritime traffic of large cargo ships and tankers sailing between Asia and the North Atlantic poses a significant threat to the Arctic ecosystems. Even the current levels of pollution are already alarming be it at least for the fact that the breakdown of oil in a very cold ocean takes much longer and it is very difficult in these waters to use the biological methods of oil neutralization like those used in the big oil spill in the Gulf of Mexico.

As a substantial increase in passenger traffic in the North is noted, it is only good luck that so far there have been no disasters at sea. Due to the maritime traffic increase, the Icelanders claim that international emergency plans are needed in case of accidents and mechanical failures. At the meeting in Nuuk, the topic was discussed and cooperation on search and rescue operations in the Arctic was agreed on.

(Footnote 40 continued)

420 km from the Faroe Islands. It covers the territory of 103,000 km^2 and is populated by 318,000 people. Reykjavik is its main city, the capital and an administrative center; it is inhabited by 184,000 people. Retrieved May 15, 2013 from http://www.islandia.org.pl/dane.html.

[41]See The Ilulissat Declaration. Arctic Ocean Conference. Ilulissat, Greenland 27–29 MAY 2008. http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf.

[42]U.S. Secretary of State Hillary Clinton, in order to show the U.S. interest in the cooperation with the European countries in the exploitation of Arctic natural resources, made also a trip (June 2, 2012) to the Norwegian city of Tromsø, located above the Arctic Circle, where since the beginning of 2012 the Permanent Arctic Council Secretariat has had its headquarters.

Similarly, marine oil pollution preparedness and response was deliberated. The Icelandic Minister for Foreign Affairs presented for discussion an idea of establishing an international Arctic Search and Rescue Center which could be located in Iceland. Due to the increased maritime traffic, the Icelanders think also about the construction of new sea ports. In distant Langanes in North-East Iceland, the planning of such a port has already begun.

In the Arctic context, one more time the matter of the Iceland application for membership to the European Union was brought up. Opponents of the membership with Björn Bjarnason, formerly one of the leaders of Selvstendighetspartiet (the Independence Party), are of the opinion that the EU wants to have the island among its members treating it as a way to assure its influence in the North and being closer to controlling the region.[43] The afore-mentioned B. Bjarnason and others claim that the location on North Atlantic may again strengthen the international position of Iceland as Americans will renew their interest in it due to the growing significance of the High North.[44] Such a situation might involve a special type of relations with the U.S. and also Canada, Norway, Greenland, and the Russian Federation. This hypothetical scenario is presented as an alternative to the EU and the EU Northern Areas.

This political rhetoric was adamantly opposed by the Minister for Foreign Affairs Össur Skarphéðinsson. He maintains that the EU membership fits the interests of Iceland in the Arctic very well. Ö. Skarphéðinsson, in an article published by the paper *Fréttablaðið* stated as follows: "When returning to the great Icelandic dreams about the Arctic, the situation, unfortunately, is that the voice of Iceland alone does not make appreciable impact in the Arctic Council. Other members of the Council can easily boycott Iceland, which our allies already have done <overlooking> to invite Iceland to prepare the meeting of the Council. The point is that if the interests of Greenland and Norway coincide and at the same are against the interests of Iceland, these two states will stand side by side against Iceland. We have extensive experience with Norwegian obstinacy and inflexibility in such cases. Who is there to defend Iceland's interests then? EU member states of Denmark, Finland and Sweden? Is there not a risk that they will side with Greenland due to its position in relation to the Union member Denmark?"[45]

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[43]As commonly known, the European Union had applied for permanent observer status in the Arctic Council which once again was denied at the ministerial meeting of the Arctic Council in Kiruna in May, 2013. EU efforts are hampered by the fact that there are two member states which already belong to the Council: Sweden and Finland. Moreover, Denmark is a member of the EU in some cases acting on behalf of Greenland.

[44]The U.S. interest in Iceland grew much weaker after the withdrawal of U.S. forces from the Keflavik air base in Iceland in 2006.

[45]Translated by R. M. Czarny. In the original: "Atter om islendingenes arktiske storhetsdrømmer. Situasjonen er dessverre slik at Islands stemme alene ikke gjør nevneverdig inntrykk i Arktisk råd. Andre medlemmer av rådet kan enkelt boikotte Island—som de faktisk allerede har gjort da de "glemte" å invitere Island til forberedelsemøtet i rådet. Saken er at hvis Grønlands og Norges interesser sammenfaller, og de står mot Islands interesser, vil de to statene stå side ved side mot Island. Vi har lang erfaring med nordmenns uforsonlighet og manglende fleksibilitet i slike saker. Hvem er det da som skal forsvare Islands interesser? EU-landene Danmark, Sverige og Finland?

Given the afore-mentioned situation, similarly to other countries of the High North, also the Republic of Iceland adopted the principles of its national policy on the Arctic. The Icelandic Parliament, Althingi, adopted a resolution on its Arctic policy on March 28, 2011. The Parliament instructed the Government of the Republic to secure Icelandic interests in the Arctic with regard to the effects of climate change, environmental issues, utilization of natural resources, maritime safety and social development, with a special emphasis on cooperation with other countries in the region. Those interests are defined in 12 points:[46]

- Strengthening the Arctic Council as the most important forum on the High North issues and promoting it as an entity for international decision-making on the Arctic;
- Securing Iceland's position as a coastal state to the Arctic Ocean and emphasizing the rights of Iceland to the Exclusive Economic Zone north of the Arctic Circle. It should be noted, however, that the coastal states bordering on the Arctic Ocean—Russia, Denmark, the United States, Canada, and Norway—do not recognize such a status of Iceland which excludes this country from the territorial claims or carving out national sectors around the North Pole;
- Promoting the understanding that the Arctic extends beyond the polar circle and includes territories geographically related to the Arctic such as the North Atlantic Ocean where Iceland is situated. The Arctic should not be limited to a narrow geographical definition but rather be viewed as an extensive area when it comes to ecological, economic, political and security matters;
- Settling territorial disputes in the Arctic on the basis of the United Nations Convention on the Law of the Sea;
- Increasing cooperation with the Faroe Islands and Greenland to strengthen the international position and effectively safeguard the interests of the three countries;
- Supporting the rights of indigenous peoples in the Arctic in close cooperation with indigenous organizations and supporting their direct involvement in decisions on regional issues;
- Promoting international cooperation on key issues for Icelandic interests;
- Using all available means to mitigate the effects of climate change in order to secure the well-being of Arctic inhabitants. Moreover, emphasizing the importance of environmental protection and of the unique culture of indigenous peoples as the two areas most threatened by climate change;

(Footnote 45 continued)

Er det ikke fare for at de tar Grønlands parti på grunn av Grønlands posisjon i forhold til EU-landet Danmark?" Quoted after: Helgason, E. Nordpolen, Island og EU, analysnorden, www.norden.org. Retrieved May 19, 2012.

[46]For the full text go to: A Parliamentary Resolution on Iceland's Arctic Policy (approved by Althingi at the 139th legislative session March 28 2011). http://www.mfa.is/media/nordurlandaskrifstofa/A-Parliamentary-Resolution-on-ICE-Arctic-Policy-approved-by-Althingi.pdf. Retrieved April 03, 2013.

- Preventing any kind of militarization of the Arctic;
- Developing further trade relations among the states in the Arctic region to stimulate the economy and increase economic activity;
- Promoting Iceland outside its borders and advancing Icelanders' knowledge of Arctic issues through scientific institutions and research centers;
- Increasing consultations on Arctic policy at the national level (Iceland's Strategy).

The reference in the document to the Convention on the Law of the Sea springs from the fact that Iceland is claiming rights to the continental shelf extending from the shores of the island in the south-western direction. According to Iceland's Ministry of Foreign Affairs, the Republic has every right to claim the area reaching over 1570 km from its coastline instead of today's mere 650 km. Satisfying these claims would allow Iceland to begin exploration for oil and natural gas in a very promising area (Czarny 2009, p. 132).

The entire document testifies to the importance given by Iceland to climate change. The Declaration several times reiterates that the country is indeed a part of the Arctic Region and that is why the islanders are especially vulnerable to rapid changes, and it pertains particularly to the environment and indigenous peoples. Iceland is also a great advocate of decision-making power on Arctic issues made together by all the states within the framework of the existing regional international organizations. It is easily understood as in bilateral negotiations Iceland is somewhat marginalized in international policy debates while in international fora its voice (at least in formal and legal term sense) has the same weight as that of any other country.

The Republic of Iceland considers all of its territory to be geographically located within the Arctic but the state happens to be in a worse geopolitical position than the afore-described countries. First of all, it is denied the right to access to the Arctic Ocean which in essence is denying it a possibility of claiming the rights to the continental shelf around the North Pole. Neither has oil and natural gas been found on the island. Nevertheless, Iceland has attempted to pursue an active policy in the High North. It concentrates on strengthening cooperation between regional organizations, protection of the marine and terrestrial environment (which is of key importance to the country so much linked to the sea) and promoting sustainable development based on renewable energy resources of which it has plenty.

6.1.6 Relations with the Russian Federation

Russia is a very important partner for the Nordic countries but the relations between the two sides are not always exemplary. On the one hand, this is a result of the ever-changing Russian position itself, and on the other, it springs from much diversified interests of individual Nordic states towards Moscow. Currently, when we can talk about the next stage of a deepening cooperation of the Nordic states,

addressing the relations with the Russian Federation, more attention should be paid to the following fundamental issues: Russian foreign policy as assessed by the Nordic experts, the evaluation of the economic situation of Russia, the chances of democratization of Russia, and the potential Nordic cooperation in the fields related to the policy towards Russia.

Experts from the Nordic countries perceive foreign politics of Russia in a similar manner as least in one aspect: they regard Russia as an important neighbor of the European Union. At the same time, they consider the current foreign policy of the Federation a continuation of the super power politics of the Soviet Union which means it is geared towards regaining spheres of influence and making decisions about the shape of the world order. In addition, Russia has effectively used the trade of raw materials as a tool to secure its strong international position. Nordic experts emphasize that using natural gas for political bargaining does not also serve Russia well. They also note that Russia's policy seems to be reactive and negative as it does not propose any constructive solutions but rather focuses on blocking actions of the actors which do not suit that country. Regarding relations among the countries as a zero-sum game, Russia does not accept the culture of striking compromises and appears to attribute much value to might and rivalry rather than conciliation.

Differences of opinion among Nordic countries as regards Russia concern mainly the underlying motivation of its foreign policy. Sweden takes the view that Russia's behavior gives a clear indication of its perceived inferiority, under-appreciation and anxiety arising from a rift between its aspirations and the reality. Finland, on the other hand, is of the opinion that it is a consistently pursued policy of national interest which is being effectively protected. As a result of a slightly dissimilar understanding of Russian foreign policy motives, Sweden and Finland interpret the same facts differently.[47] Some Finns meanwhile argue that this is a result of backing Russia into a corner and causing Russia to feel threatened.

In this context, it is worth examining whether Russia is perceived by a given country as its possible partner or rather a potential rival. Although Swedish, Norwegian and Finnish experts alike regard this country as a partner, they perceive it also as one which is causing problems. All Nordic experts agree that Russia is an indispensable partner in a number of challenging issues—ranging from Iran and disarmament to stability in the Caucasus and Ukraine—but especially in the matter much closer to home, i.e. the High North. It is quite understandable since these countries perceive the Russian Federation as a partner because of its close geographical proximity and the need for stability in the region.

At the same time, however, experts point out the unpredictability of Russian policy which results in Russia being perceived as an unreliable troublemaker. When arguing unpredictability, experts mean a lack of predetermined and consistent position on negotiation issues or attempts to manipulate the negotiations. In their

[47]The examples of the conflict in Georgia and the dispute over gas supplies in Ukraine are quoted by the Swedes as a proof of effectiveness of Russian foreign policy and its consistency.

opinion, Moscow often changes its position making the outcome dependent on being treated, in its opinion, on par with others. Russia's actions are driven not only by its interests but the emotions including the perceived under-appreciation.

Both Swedes and Finns agree that Russia does not pose a direct threat to the "old" European Union. It might, however, be a threat to its immediate neighboring regions which are not yet that well integrated with the West. There is a consensus as to the validity of Ukrainian, Belarussian and the Caucasian concerns. Russia may pose an objective threat (military or economic), for example through interrupting or cutting off raw materials supplies, if those countries do not act in line with the Russian strategic plans. However, the potential Russian threat to the new NATO and EU members, and especially the Baltic States, is perceived in much varied ways. Swedes, for example, believe that Russia could pose such a threat when applying economic instruments or taking advantage of the energy dependency of other countries.

Also, there are differing opinions on engaging Russia in resolution of international conflicts (e.g. the war in Afghanistan or the Iranian nuclear program). In this perspective, of particular interest is the conviction of some Norwegian as well as German experts that partnering with Russia may bring about political stability and prevent the escalation of the conflict in Ukraine. Sweden, on the other hand, is much more skeptical about the added value of a partnership with Russia in conflict resolution. When it comes to the Iranian issue, they consider Russian involvement as an attempt to put forward Moscow's own interests in the power game between the United States and Russia.

Scandinavians are of the opinion that the cooperation should involve Russia since this may lead to its greater political stability and predictability of actions in the international arena. Moscow's nuclear potential remains significant and its engagement in shaping the international security may prove useful and much beneficial. The question remains, however, what role should Russia assume in the collective security system.

Regarding Russian economic situation, there are no major differences among Scandinavian experts in its assessment. In their opinion, the Russian economy is ineffective, based on raw materials and in dire need of reforms[48] which are not being carried out. Given this situation, the Eastern Partnership—a joint Polish-Swedish initiative—could play an important role. Poles and Swedes believe that the Partnership could provide a framework to support transformative changes in the Russian society. There is agreement among experts that good relations with Russia and support given to Eastern European countries should not be mutually exclusive. However, there exist diverging opinions on the role of Russia in the

[48]The EU's answer to the challenge of modernization is providing support to Russia within the framework of the Partnership for Modernisation, presented by the European Commission in November 2009, and launched at the EU–Russia Summit in Rostov-on-Don in June 2010. The main objective of this project is to support the modernization process in Russia: boosting innovation, improving transport, combating corruption, and promoting people-to-people contacts. However, as it has been stressed, it is mainly the Russian political elite that must want the change.

Eastern Partnership, for example among the Danes. Some of them clearly call for closer ties of the Eastern Partnership with Russia and even the country's full inclusion into the initiative. Others seem to appreciate the Russian apprehension towards the initiative which, according to Russia, may invalidate its dominant role and position in the region.

The real test of the issue might be the position of the EU towards Russian practices as according to the European principles in that country a significant regression of democracy and basic democratic freedoms has been noted in the last decade. It should be observed that regrettably the issues of respecting international human-rights standards and principles of humanitarian law have not been discussed in the talks held between the European Union and Russia. Although experts agree that notwithstanding the undemocratic system of governance and setbacks registered in political rights and freedoms, particular attention should be given to the potential for democratic transformation. The hope for the positive developments in Russia lies in support extended to the advance of its civil society.

Drafting by the Nordic countries a precisely defined vision of the common EU policy toward Russia would be an important step forward in strengthening the position of the European Union in its relations with Russia. However, while the government in Helsinki according to its own policy towards Russia is actively pursuing a dialog with Russia wishing to represent not only its own country but also the EU, the government in Oslo prefers the bilateral approach. Interestingly enough, the Norwegian experts believe that Norway's relations with Russia, for example in the Arctic, should not be conducted on a bilateral basis but rather settled on the European stage.

It seems that the Nordic countries of the EU should strive to reach consensus on the EU's strategy and its main objectives towards Russia. Then, all of the EU countries would have to consistently adhere to the adopted resolutions. The developed policy should not only include the EU's declaration on its openness towards a Russia of reforms, modernization and stability, but also include a statement rejecting Russian sphere of influence in the neighboring countries.

At this stage, the prime ministers of the Nordic countries consult their positions on the European policy. For instance, the prime ministers have been discussing the objectives of the EU-Russia Partnership for Modernization and the Eastern Partnership initiative.

However, if the Eastern Partnership is to pursue the objective of promoting transformation in Eastern European countries, it should not expect that Russia would welcome the initiative with open arms. But the firm stance and commitment of the Nordic countries could facilitate a development of an appropriately balanced policy toward the Partnership countries and Russia.

It is a matter of particular importance as the Nordic countries' diplomacy recognizes the Eastern policy as *a window of opportunity* in the relations with Russia. This opportunity should not be missed and the role of Russia in the Eastern Partnership carefully considered.

The diverse perspectives of the Nordic countries on the potential threat posed by Russia and its role in the international arena clearly indicate a need for the Nordic

cooperation of ministers to develop a common strategy on defense and security and the need to assess the prospects for its implementation policy.

A basis for the dialogue should be those aspects and opportunities which promote a greater institutional and tangible commitment of Russia to the European Union's common foreign and security policies. Equally important would be the question whether Russia should be included in the development of EU's energy systems projects in Eastern Europe and within which framework its economic and energy relations in the East should be established (Eastern Partnership, the Northern Dimension, or the Baltic Sea Region Energy Cooperation—BASREC)? These plans should also consider development of renewable energy and energy efficiency projects such as the one implemented in Kaliningrad.

Most important, however, is to initiate bilateral or multilateral projects between/among non-governmental organization from Finland, Sweden, Denmark, Norway or Iceland and Russia. Those nations' experts call for a renewed effort to strengthen the civil society in Russia by facilitating multifaceted contacts and exchange of values with the Pan-Nordic organizations and the European Union. Some of them, e.g. Norwegians, support the liberalization of the visa policy, broadening the scope of exchange programs and continuing the assistance to non-governmental organizations as tools to achieve this objective. The experiences of the Nordic countries in building of and supporting civil societies may prove themselves very valuable and most significant in the long term.

Thus the Nordic countries' cooperation on the development of coherent policy towards Russia should be conducted on two levels: the Nordic cooperation and the EU level. Furthermore, in the latter case, the objective should be to reach a common position based on which the European Union would support Russia's reforms and stability, and the modernization efforts should not be limited to the economy only but ought to encompass democratization and changes in the political system.

It is worth-noting that in all the policy documents drafted by the Nordic countries on the High North strategy, establishing good relations with the Russian Federation seems to be the focal theme. Such normalization of relations should be pursued through bilateral, multilateral and inter-parliamentary contacts and dialogue. With view to that, in the spring of 2012, members of the Nordic Council and Russian parliamentarians initiated a number of joint meetings and discussions. A large number of newly-elected members of the State Duma in Moscow and regional parliaments in North-West Russia participated in these spring events.

The Nordic Council members were invited to visit Naryan-Mar, the capital of the Nenets autonomous region in northern Russia between 12 and 16 of March 2012. On its way to visit Naryan-Mar, the NC delegation made a stop at the Nordic Council of Ministers' Office in St. Petersburg. The seven-member delegation, among others, included: Karin Gaardsted (Denmark) and Simo Rundgren (Finland), representing the Presidium, and the chairs of two committees, Arni Thor Sigurdsson (Iceland) of the Culture Committee and Siv Fridleifsdottir (Iceland) from the Welfare Committee. Their agenda comprised meetings with local government, visits to the Lukoil Oil Company and the locality of Tel'viska where the Nordic group met with representatives of the indigenous peoples.

The atmosphere and dynamics of the meetings, in my opinion, lead the Nordic Council to limit its engagement only to observing parliamentary elections in a neighboring state and declining an invitation to send its observers to oversee the presidential election in Russia on March 4, 2012.[49]

In April 2012, the 4th International Forum for Young Politicians from the Nordic Region and North-West Russia took place at the Riksdag, the Swedish Parliament. In May 2012, the "round table"—a meeting of a small group of Russian parliamentarians and a delegation of the Nordic Council—was held in Finland's Parliament. In the same period, twenty deputies of the Russian State Duma and a number of representatives from the regional parliamentary assemblies of North-West Russia revisited Iceland where they attended meetings in the Parliament and with the local authorities. The invited parliamentarians also visited a power plant since the energy issues were among the main topics discussed during the visit.

However, it is Norway that bears, if only because of its geographical proximity, the prime responsibility for the Norden relations with Russia in the High North. The routine, almost "automatic" military and political support for Norway by the NATO allies ended along with the Cold War. Russia is becoming stronger, militarily and economically, whereas Norway on the basis of the Paris Treaty on Svalbard signed in 1920 reasserts its rights in the Northern Areas. Norway's allies emphasize that they do not support its claims (the case in point is the UK's diplomatic note) while the EU refrains from commenting on disputes between States which are not members of the Community, while the U.S. maintains strict neutrality. In the event of any conflict with Russia in the North, it seems that Norway should not rely on NATO to intervene since the old "balance of threat" between East and West has become an obsolete notion. In the post-Cold War era, more than ever before, Norway may find itself standing entirely on its own. Norway, as a producer and exporter of oil and gas, has both convergent and competing interests with Russia.[50] These issues were discussed during the working visit by Norwegian Minister of Foreign Affairs in Russia (February 15–17, 2007) where the issues of bilateral relations were addressed including: observance of fisheries protection zone around

[49]Nonetheless, Kimmo Sasi (President of the Council) was a member of observer delegation from the Council of Europe (the Europe Council). His report and the Nordic Council's observations on the Duma elections on 4 December 2011 are available at: Russian election under fire. International observers covering the election to the State Duma on Sunday 4 December have issued a statement criticizing the conduct of the ballot, Dec 06, 2011, http://www.norden.org/en/news-and-events/news, (retrieved December 10, 2011), and Fördel Putin, Kimmo Sasi, Publicerad: 7.3.2012, http://hbl.fi/i-dag, Retrieved April 15, 2012.

[50]At a press conference on February 01, 2007, Russian President Vladimir Putin said Norwegian energy companies had every chance to become foreign partners in developing Shtokman. The President also stated that the Russian oil giant Gazprom was not opposed to inviting foreign companies into the development of the Shtokman natural gas field. Putin said "many different possibilities" existed for foreign companies at Shtokman, including working as an operator or consultant. When asked, the President said that it was "Gazprom's own business" when and which foreign companies will be chosen. http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a2XIj5WA5cm0&refer=special_report.

the Svalbard archipelago by Russian trawlers, prospects of lifting the ban on Norwegian fresh salmon imports, the issue of delimitation of economic zones and the continental shelf in the Barents Sea, and cooperation in the energy sector. At the Moscow State University, J. G. Støre during his speech on bilateral cooperation in the High North outlined the key elements of Norwegian energy and cooperation policy in the High North as follows by enumerating the following:

- The marine delimitation of the economic zones and the continental shelf between Norway and Russia in the Barents Sea remains an important issue still to be settled.[51]
- The integrated management plan of resources for the Norwegian part of the Barents Sea presented to the Storting could provide the basis for the development of the joint Norwegian-Russian strategy for the entire area. (Foreign Minister Støre encouraged Russian partners to engage in "Barents 2020," the recently initiated program by the government for research and development in the High North.)
- Norway, including the government officials expressed great interest in Hydro and Statoil to become foreign partners in exploitation of Shtokman natural gas field in Russia, located in the Barents Sea 500 km north of Murmansk. Norwegian companies have the required new technologies, meeting the requirements of environmental protection, and extensive experience in exploitation of natural resources under extreme conditions in the rough northern waters.
- The first deliveries of liquid natural gas (LNG) from the Norwegian Snøhvit field in in the Barents Sea to the USA were shipped to the East Coast ports of the United States in 2007. In the long run, Norway plans to import LNG to the European countries by ships or using the gas pipeline network extended from the Norwegian Sea to the Barents Sea.
- In the near future, the Barents region might become the most important European 'energy province.' The region's advantage is in its wealth of oil and gas deposits estimated at a quarter of the world's reserves, with the location in the so-far politically calm and stable part of the world, and the geographical proximity to markets in Europe and North America.[52]

Since the first offshore drill in the southern part of the Barents Sea in 1980 only sixty more were made. For comparison, approximately 1000 bores were drilled on the other part of Norway's continental shelf. Currently, only the southern part of the Barents Sea is open for extraction activities, although the Norwegian Petroleum Directorate carried out seismic surveys also in the northern part. The so far limited results on the Norwegian continental shelf led to a decline of interest on the part of the largest global oil companies in the Norwegian part of the Barents Sea. ExxonMobil, Shell and BP companies opted out of the 19th round of concession

[51]The issue was resolved through a political agreement in 2010.

[52]See: *Aftenposten*, February 24, 2007.

allocation but at the same time remained active in different regions of Arctic Russia. Approximately 50 significant oil and gas fields have been discovered in the Russian part. According to the companies, national authorities and international organizations, the largest reserves of oil and gas exist in the Russian part. It is believed also that the potential oil and gas deposits in the disputed area between Norway and Russia are much more significant on the Russian than the Norwegian side. So far, in the Norwegian part of the Barents Sea, only the discovered in 1981 Snøhvit field has been developed. Following the initial investment of approx. NOK 58, the gas production began at Snøhvit in 2007. The gas from Snøhvit is transported through a 143 km pipeline to a gas plant at Melkøya near Hammerfest and shipped to Europe and the U.S. According to the estimates reported in 2007, the Snøhvit field should contain around 160 billion cubic meters of natural gas. By comparison, Troll field in the North Sea, the largest field on the Norwegian continental shelf, holds 1320 m^3. The second discovery in the Norwegian part of the Barents Sea is the Goliat field where Italian company ENI has made two other big finds of oil, estimated to hold some 250 million barrels of oil equivalent. It has not been decided yet whether and how the field will be developed although the environmental protection groups have already voiced their outright opposition. As the future oil and gas developments in the North depend on their coexistence with fisheries, reaching an agreement on the delimitation line in the Barents Sea have created new opportunities both for Norway itself and its cooperation with Russia. On the Russian side, gas was discovered in the Severo-Kildinskoe field near the delimitation line. The potential wealth of the oil and gas deposits of the region speeded up the ongoing negotiations on the delimitation line between the two countries. The largest field among the recently discovered deposits of oil and gas on the Russian side is the Shtokman field which is 2–3 times larger than the Norway's Troll. It is estimated to hold some 3200 billion cubic meter of natural gas. Although initially it was announced that the exploitation of the field would start in 2010, apparently it is to commence a few years later. It is assumed that the annual production will reach 60 billion cubic meter of gas.

Today, Norway and Russia should cooperate in the Barents Sea and solve all issues related to the region. Norway's debate on resources exploitation in the Barents Sea has been largely focused on a range of issues relating to environment. Nonetheless, the Norwegian Parliament opened the Barents Sea for oil drilling in the waters bordering Russia's despite protests from environmentalists.

So far Norway allowed oil companies to exploit the natural deposits throughout nearly the entire area of the Norwegian part of the Barents Sea in the Arctic. The exception has been an area the size of Switzerland located near the maritime border with Russia. Environmental groups claim that the drilling in the remote and fragile waters of the Arctic poses a substantial threat to the natural environment. Drilling is not allowed in areas less than 50 km (31 miles) from the edge of the permanent ice zone. The Norwegian government has announced that drilling in this ecologically

sensitive region must be carried out very carefully and that the seabed drilling will not be allowed in the in the areas covered by ice.

The decision of opening the Barents Sea to oil companies might be the outcome of the agreement between Oslo and Moscow.[53] When signing the agreement with Norway, it seems likely that Russia had been counting on a closer cooperation of both countries in the Barents Sea. In January 2011, the then Prime Minister and now President of Russia Vladimir Putin, while presenting the maritime delimitation treaty between Russia and Norway said that the agreement should foster favorable conditions and an opportunity to implement joint programs and initiatives (Norwegia otwiera 2013).

In Russia, however, there seems to be quite different approach to the issue. The Russian debate on the Barents Sea is perceived to be void of any enthusiasm for the future activities on the continental shelf.[54]

Gazprom representatives have had no comment on the issue. According to the Russian industry experts, Norway overestimates its extraction potential. They point out that Norway produces 85 billion cubic meter of gas annually and that the plans to increase it to approx. 130 billion cubic meter are decidedly too ambitious. The Russians estimate Norway's gas reserves at 2.39 m^3 with all the large deposits, in their opinion, being already exploited at the maximum level. The increase of output is contingent upon the development of smaller deposits but its growth will not be greater than 20–25 %. Gas from these deposits will be more expensive as they are more difficult to access, and require more investment in their development. According to the Russian experts, the planned reform of the EU gas sector may be painful for Norway. At present, gas from Norway remains competitive since Norway is a beneficiary of the EU preferential system. Once the free market for gas is created, which Brussels is in favor of, it may well turn out that the gas production becomes unprofitable as gas will be simply too expensive. The Union liberalization plans are also not too favorable for Gazprom (Rossijskaja Gazieta 2007).

For Russian companies, such cooperation is not only a chance to increase profits but above all an opportunity to obtain offshore arctic drilling technology. Russians are just taking the first steps toward its development whereas Norwegians are possibly the best in the world. The Russian side highly values the technological competence level of the Norwegian petroleum industry. "Norway has developed a unique competence in the oil sector so we look forward to prospective cooperation of Russian and Norwegian companies within joint oil projects in all other parts of the world, not only in Russia and Norway."[55]

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[53]I am referring here to the ratification of the Russian-Norwegian agreement on maritime delimitation in the Barents Sea. The agreement ended the 40-year-old dispute over dividing the Barents Sea and the moratorium on the exploration and exploitation of oil and gas resources in the region.

[54]For instance, a number of Russian experts argued that Norway's plans of increasing gas exports in the years 2007–2012 was an attempt to provide an alternative to the Russian supplies for the EU market.

[55]Statement by the head of the Russia's Federal Energy Agency, S. Oganesyan in *Aftenposten*, January 26, 2007. It should be added that the Hydro company together with Gazprom applied for a

It did not take long as in mid-2013 the Russian company Rosneft together with the Norwegian company Statoil were awarded an exploration and production license[56] in the Norwegian part of the Barents Sea. Rosneft holds a 20 % participating interest in the production license whereas Statoil is the operator of the concession with 80 % stake.

Another Russian oil company Lukoil has obtained its participating interests in Norwegian production licenses awarded by the Norwegian Ministry of Oil and Energy. In this licensing round, the Norwegian Government awarded 24 production licenses in total: 20 in the Barents Sea and four in the Norwegian Sea.

The described actions and events lead to posing the following hypotheses: **Norway and Russia, given their geographical location, geological conditions and the world's growing demand for energy, seem to attempt a new stage of cooperation or perhaps even some quite new form of alliance in the North. Norway seems to be almost a perfect choice since it shares a common border with Russia and possesses the technology needed in the Northern Areas. Moreover, Norwegians seek a "privileged partner" status in Russia. There are also plans for developing a Norwegian-Russian agreement on administering the Northern Areas.** And even though Norwegians realize that the struggle for political domination and positioning on the world stage continues by using energy as a tool to attain a strategic leverage, they still think it should not interfere with the Norwegian energy cooperation.

Is Norway fully aware of the potential and possible political "landmines" it might step on? **Today, one might get the impression that the prospects of new profits from energy resources in the North seem to cloud the complexity of the political picture for the Norwegian economic and political leaders.**

6.1.7 The Position of the Russian Federation

In the process of the world economy globalization, the phenomena of primacy of economic issues over political ones are observed. Transfer of technology and capital, economic exchange and trade are based on the general principles of free market and international cooperation. There are states, however, in whose politics the understanding of these processes occurring all over the world seems to be somewhat limited. Politics, the state and power encroach upon the area which should be the sphere of

(Footnote 55 continued)

license for survey operations in Libya where as in Iran Hydro cooperates with Lukoil. Moreover, Gazprom, Statoil and Norsk Hydro concluded a cooperation agreement on prospecting oil and gas reserves in the Barents Sea.

[56]Rosneft and Statoil jointly started exploration drilling at the Pingvin Licence PL713 prospect in the Norwegian region of the Barents Sea. See: Norwegowie wprowadzają Rosjan na arktyczne złoża, June 13, 2013. Retrieved January 02, 2014 from http://wyborcza.biz/biznes/1,100896,14098271,Norwegowie_wprowadzaja_Rosjan_na_arktyczne_zloza.html#TRrelSST.

international business, banks and other economic institutions. In consequence, their economy becomes a tool of unscrupulous foreign policy, "… and its *soft sword* enjoys now an unprecedented political and diplomatic support" (Werner 2007).

The above remarks may be easily applied to the Russian Federation whose actions within that area are unambiguous: expansion into the external markets combined with shutting down or limiting access to its raw materials which influences even its internal market.

Russian fuel and energy industry is a key element of maintaining the country's international position. The Russian Federation is not easy to cooperate with as the cooperation seems to be conditioned by the following four factors:

Number one is the difference in the approach towards energy issues. For Russia of today, strong centralization is a guarantee of its energy security, realized through vertical integration and control exercised by one center of authority. Whilst in the USSR military sector was the driving force for economic growth, today it is the energy industry.[57]

Number two is the increased demand caused by the current deficit of natural gas on the market. To exacerbate the situation, Russia vigorously pursues the strategy attempting to limit and weaken the position of independent players on the internal and external energy market. But, according to the experts, without a serious restructuring and liberalization, Russia may not be able to meet the growing demand and fulfill the task of providing supplies both for export and the internal market.[58]

Number three is the aggressive rather than investment-oriented policy of the state gas sector, aimed at covering the increased deficit in Russia alone, and not at countering it. Gazprom overtakes the export infrastructure, keeps buying out foreign enterprises and simultaneously actively "hunts" for energy resources in other regions of the world. Fully supported by the highest authorities, it attempts to hinder and impede energy projects which might weaken the monopolistic position of Russia.

Number four is the geo-economics of Russia's "near abroad." Historically formed relations between representatives of the elites, cultural similarities of governance and mutual dependencies allow Russia to make use of geopolitical concessions, compromises and subsidies to curtail the sovereignty of the neighboring countries. As such a policy has proven very effective in the past, it is very difficult to resist its appeal today. The situation is best understood in Ukraine, Lithuania, Latvia, Estonia, and Poland. The "old" Member States of the Union do not seem to be able to understand this context or be willing to make every effort against using energy as a "political weapon." They try to seek an alliance with the suppliers, led by the notion of some sort of "energy OSCE" within which energy suppliers, transit

[57]On the other hand, the EU seeks energy security through effective regulatory policy (without making a differentiation into "ours" and "theirs"), diversification of energy sources, its suppliers and supply routes. See Kublik (2014).

[58]In order to exploit new gas deposits, Russia needs annually ca. 11 billion USD.

countries and the recipients could reach agreement and ease the tension through dialogue.[59] Given past experiences, such endeavors clearly point to political and energy naiveté as exemplified through the statement of S. Jastrzembski, V. Putin's advisor on EU relations: "There is no hope for any kind of compromise in terms of energy policy; this is the matter decided once and for all as accepting the EU Energy Charter would only bring losses to Russia. Energy is our triumph which we will never let go" (Jastrzembski 2007).

An in-depth analysis of Russia's decisions and actions towards the EU shows that in fact all the debates are only masking the real problem which is a drive of Russia and V. Putin to achieve new power and recognition. To achieve its goal, Russia escalates the atmosphere of crisis and tension, shies from no threat or menace, as well as overblown reactions. Among others, it is oil and gas which contribute to the feeling of high esteem enjoyed by President Putin, as they make Russia powerful and independent.

Today's Russia is no longer a country needing assistance: it is rich and dynamic, and above all—excessively proud. The assessment of mutual dependence, so often evoked in Germany, does not seem to be the right one. Indeed, there exists dependence, but rather one-sided; for example, natural gas that is in demand is from a Russian point of view also a source of acting from a position of strength.[60] Recent years, due to the rise in the price of energy, significantly strengthened Russian position in the international arena. The situation between Europe and the new Russia gradually takes on a bipolar appearance. This relationship, clearly different than before, can be illustrated by the fact that the cooperation seems to be in constant competition for primacy with constant tug of war for political and economic influence. The situation is well described by M. Jarocki who writes: "Recently, Russia has been trying to change the character of its foreign policy. It is manifested by engaging its main efforts in those regions of the world where there is a real chance of acquiring measurable benefits. One such example is the Arctic which is gradually becoming the arena of growing territorial disputes" (Jarocki 2011). Indeed, for the Russian Federation the Arctic is of a particular importance and becoming Russia's both internal[61] and external azimuth for its policy. The first element is decided by the fact that the Russian sector of the Arctic occupies a large part of the Russian Federation, regardless how we define the Russian North.[62] The policy towards the Arctic, unlike Russian activities in more distant parts of the

[59]Compare: *Handelsblatt*, February 27, 2006.

[60]At present, the EU represents a large gas market for Russia and Russian gas accounts for 40 % of Europe's imported gas (see: Kavalov et al. 2009) and for 6.5 % of the EU's total primary energy supply (see Noël 2008). In addition, according to the 2011 World Energy Outlook, the export of Russian gas to Europe will increase slowly, reaching around 235 billion cubic meters (bcm) in 2035, compared with 200 bcm in 2010 (see International Energy Agency. *World Energy Outlook 2011*. International Energy Agency, Paris. http://www.worldenergyoutlook.org/publications/weo-2011/, p. 284).

[61]See Александров (2012).

[62]See Sect. 2.1.

world, is directly connected with the political and economic interests of the Federation. In this context, it is perhaps easier to accept the following statement: "Who is first to go to the Arctic, will be a 21st century leader" (www.arctic-info.com), an opinion expressed by the Russian Deputy Prime Minister Dmitry Rogozin in Vladivostok at a forum on the protection of Russia's strategic interests in the Far East. For Russia, the geography itself (or even the political geography of the North) is of great importance to ensure national security and to guarantee the territorial integrity of the state. It must be noted that for quite a long time the Arctic remained the most strategic place of direct contact between the USSR and the NATO countries.[63] During the Cold War, it was considered by both sides not only a key strategic area but also a potential theater for military actions. As early as the 1970s and 1980s, the central authorities of the USSR made a decision to make the social development of the Russian North of special significance.[64] For example, at that time, most of the housing was built in accordance with standard norms of central Russia which in consequence did not meet the requirements determined by the northern conditions, e.g. due to limited insulation (Zalkind 2010, p. 168). Consecutive reforms of that policy have not brought the intended effects and probably to this day are among many Russian reforms still distant from successful completion. The situation is succinctly put by Korejba[65] who writes: "… one should note that the main cause of long-lasting marginalization of the Arctic in Russian political life as well as lack of effectiveness of its strategy towards the region was the absence of policy driving force which could possibly be the State represented by ministries and federal agencies, regional authorities or business companies" (Korejba 2014, p. 158).

Such observations do not however change the current geopolitical situation which clearly shows that in the European High North the Russian Federation is the biggest state and the decisive player. In recent years, Russia has become more determined and due to high energy prices experienced rapid economic growth. On the international scene, Russia has been trying to create its own new image of a much changed country with a high degree of self-assertiveness which does not prevent it from occasional "flexing the military muscle" in the High North. Just like Norway, it has been connected with the Arctic for centuries. Russian hunters, explorers and researchers,[66] just like Norwegian ones, have been constantly present in those inhospitable areas. But Russia has outpaced Norway in the race for

[63]ABM systems, radar stations, airports, planes and missiles were located on the Arctic territory of the Soviet Union, the USA, Canada, Norway, Iceland, and Denmark (Greenland).

[64]More on the subject in: Nilsson A. E., Filimonova, N. Russian Interests in Oil and Gas Resources in the Barents Sea. *Stockholm Environment Institute Working Paper no. 2013-05*. Retrieved July 10, 2013 from http://www.sei-international.org/mediamanager/documents/Publications/SEI-WorkingPaper-Nilsson-RussiaOilGasBarentsSea.pdf.

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[66]More on the subject Sect. 2.2.

appropriating as much as possible of the territory in the North and is currently a leader in the Arctic aspirations.

Russia intends to realize its objectives by means of a number of the international instruments available. The main ones include international legal institutions like the UN, as well as regional fora such as the Arctic Council. In addition, the Russian side will attempt to use its own geological surveys of the Arctic seabed, the technical and harbor infrastructure, and the military capability. Wise and effective use of the afore-mentioned tools may allow Russians to reach their precisely defined objectives at the expense of other countries of the region. With time, Russian policy may take a turn from cooperative and conciliatory to a more confrontational form based on unilateral actions and disregard of the views of the other relevant international players in the Arctic.[67] One must keep in mind that Russia is in the possession of nearly all necessary means allowing for increasing its Arctic presence. It has at its disposal many research stations in the region and a powerful icebreaker fleet with a four-season ability to patrol northern waters and ice fields. In a few years, Russia plans to build consecutive 3–4 nuclear-powered new-generation icebreakers as well as expand the port of Murmansk to double its capacity by 2015. Moreover, a large portion of the Federation's territory is situated in the Arctic. In the European part these are the Murmansk Oblast, the Arkhangelsk Oblast with the Nenets Autonomous Okrug, and five northern regions of the Republic of Karelia (Kubiak 2012, p. 168). Additionally, they comprise the following archipelagos and islands: Franz Josef Land, Novaya Zemlya, Severnaya Zemlya, and the islands of Vaygach and Kolguyev. The Arctic islands of Russia are sparsely populated—often times only representatives of the indigenous people live there—and mostly undeveloped economically. Some of them, as for example Novaya Zemlya, are military training grounds.

In the continental part, a great economic importance is attributed to Murmansk Oblast covering 145,000 km^2, situated on the north-western edge of Russia. It is inhabited by 864.7 thousand people, out of whom as many as 91 % live in cities.[68] The most important one is Murmansk—population 317.5 thousand. Due to its borderline location and the northernmost situation, it is an area saturated with military infrastructure, partly being a remnant of the Cold War era (Kubiak 2012, pp. 179–181).

Karelia, and more precisely its five regions called White Karelia, borders in the west with Finland, in the north with the Murmansk Oblast, and in the east with the Arkhangelsk Oblast. The area of 67,000 km^2 is inhabited by some 100,000 people. The Arkhangelsk Oblast is 587,400 km^2 large and has a population of over 1.3 million, inhabiting mainly the cities of Arkhangelsk (351,000) and Severodvinsk

[67]More on the subject in: Geopolitics in the High North. Multiple Actors. Norwegian Interests. A five-year (2008–2012) research programme financed through the Norwegian Research Council and conducted by the Norwegian Institute for Defence Studies with partners and associates, www.norden.org, p. 13 (retrieved: February 10, 2012); Bafia et al. (2012); Piaseczny (2010); Werz (2008); Heininen (2007).

[68]More on the subject see Chap. 4.

(197,000). Both cities are significant for the local economy, and perhaps it is a curiosity that since 1936 Severodvinsk has had the status of the so-called closed city, meaning a city with restricted access, granted only by permission of the FSB, Russia's Federal Security Service (Kubiak 2012, p. 188).

The awareness of a necessity for a special kind of policy towards such an important part of the country is exemplified in the Russian Strategy in the Arctic. As early as 2001, in the Maritime Doctrine of Russian Federation"[69] the protection of Russian interests in the region was recognized as a priority, including modernization of the country's fleet of icebreakers, protection of Russian's position in the northern seas, limiting military presence of other countries, and development of research on bio-resources of the North. After President D. Medvedev assumed office, the Arctic has become a priority in Moscow's foreign policy (Curanović 2010, p. 15). The Security Council of the Russian Federation accepted those plans (September 2008) and in addition did not reject the possibility of militarization of the Arctic region (in violation of international law) by the year 2016 (Kijewski 2009, p. 282). The Russian Arctic is to be controlled by the Federal Security Service of the Russian Federation (FSB) (Młynarski 2010, p. 6). On May 12, 2009, President Dmitry Medvedev approved the new National Security Strategy of the Russian Federation until 2020. The document devotes much space to the Arctic, and points out new sources of threats in the 21st century, including "resource wars" or fierce competition for large and untapped oil and gas reserves. It also suggests that in the competition for resources one cannot exclude the use of military force, and Russia shall defend its interests should its borders be in any danger. Such a position was confirmed as in 2008 the Russian Navy began flying patrols for the first time since the Cold War. In addition, Russian strategic bomber patrol flights from time to time are known to have "attempted" crossing Icelandic, American, Canadian, Norwegian, or Danish air space. All that is accompanied by declarations of Russian politicians, like the statement made by Nikolai Patrushev, former director of the Russian FSB, Secretary of the Security Council of Russia, who said that: "The Arctic must become Russia's main strategic base for raw materials," even if the battle for raw materials is to be waged by military means. Artur Chilingarov, former Vice-speaker of the Russian State Duma (the Russian Parliament) and a polar explorer stated in 2007 that "the Arctic is Russian" and "we should be expanding the Russian presence there. […] We are not prepared to give our Arctic to anyone."[70]

On August 2, 2007, the Russian science and research vessel "Akademik Fedorov," escorted by atomic icebreaker "Rossiya," carried two MIR submersibles. The Mir I and Mir II took samples of the seabed from 4302 and 4261 m. The

[69]In the maritime doctrine accepted by Russia in 2001, waters of the region were divided into the following basins: the Baltic Sea, the Black and the Azov Seas Far East, and the Arctic Sea; see: http://www.promare.pl/index.php?option=com_content&view=article&id=432%3Amorska-rosja&catid=79%3Anamiary-na-morze-i-handel-nr-21-2012&Itemid=11&lang=en. Retrieved February 23, 2013.

[70]Compare: Schep and Traufetter (2009).

expedition *Arktika 2007* had a finale of planting a Russian flag made of titanium on the ocean floor at the North Pole. The official objective of the expedition was to gather additional geological data. But it would be nearly impossible not to think that it served as a manifestation of Russian aspirations. The Russian *Komsomolskaya Pravda* published a map on which parts of the North Pole of the size of France, Germany and Italy together were added to the Russian Federation.

Such actions undoubtedly mark a symbolic beginning of a new policy of Russia towards the High North. Such a policy clearly reflects the changes in the reasoning of Russian elites and their approach, which happened during the second term in office of President Vladimir Putin. This attitude is rightly commented upon by J. Korejba who writes: "Unlike other geopolitically sensitive regions of Russia (ex. North Caucasus, Russian Far East), Arctic has not been regrouped into one specific administrative entity, a «subject of the Federation». That is why Russia's policy towards Arctic must be seen as a wide plethora of activities of central government, specified federal agencies, regional authorities and business. This activity is not coordinated but rather chaotic and often contradictory. Given the wide range of actors, it is hardly possible to identify one definite and coordinated strategy. Thus, it is more relevant to define Russia's activity in Arctic region as a proto-strategy or meta-strategy" (Korejba 2014, p. 158).

Signing on September 17, 2009 the document titled "The fundamentals of state policy of the Russian Federation in the Arctic in the period up to 2020 and beyond" (*Osnovy gosudarstvennoi politiki Rossiiskoi Federatsii v Arktike na period do 2020 goda i dalneishuiu perspektivu*), D. Medvedev stated: "The Arctic has strategic importance for our country and its development has a direct bearing on our efforts to implement our long-term national development goals and make our country competitive on global markets. […] We need, above all, to finalize and adopt the federal law on the Russian Arctic zone's southern border. A treaty fixing in law our external border on the continental shelf is also on the upcoming agenda" (after Curanović, 2010, p. 15). The words of the Russian leader clearly confirm the spirit of the document according to which the Russian Federation intends to make the Arctic the country's future strategic resource base.

Militarization of the region has not been ruled out[71] so an additional option has been declared which clearly violates the international law. Hence we received one of the few documents devoted to the Arctic, which predict a possibility of an outbreak of serious conflicts, not excluding war (Kubiak 2012, p. 232).

"The fundamentals of the state policy of the Russian Federation on the Arctic for the period to 2020 and beyond" assigns highest priority to the following issues:

- demarcation of the external border of the Russian Arctic zone (Russia's continental shelf);
- delimitation of the sea area in the Arctic Ocean;
- increased presence of Russia on the Spitsbergen, the biggest island of Svalbard Archipelago;

[71]This is a consecutive declaration of the same type; see also Młynarski (2011).

- cooperation within the Arctic Council and the Barents Euro-Arctic region;
- strengthening the partnership between Russia and the EU;
- protection of indigenous peoples;
- modernizing and developing the infrastructure of the Arctic's transport system.

The tasks assumed by the Russian government in view of the afore-mentioned priorities were as follows:

- to gather evidence in substantiation of Russia's claims to the external boundaries of the Arctic's continental shelf;
- the expansion of search for new resources;
- development of new technologies allowing for the extraction of resources in the Arctic conditions;
- modernization and expansion of the Northern Fleet;
- "permanent presence" of military troops in the North;
- development of a satellite-based system for the comprehensive monitoring of the Arctic;
- passing appropriate national laws regarding the borders of the Russian Arctic (Curanović 2010 pp. 16–17).

This document precisely describes the Russian position towards the High North. It is permeated with the necessity of securing the fundamental interests of the country in which energy resources play a main role (Zysk 2010, p. 105). According to Russian data, 90 % of Russia's natural energy reserves are located in the Arctic including 70 % in the Barents and Kara Sea. Other raw material deposits such as nickel, zinc, cobalt, gold and diamonds are also found there.[72]

An analysis of the document clearly shows that the fundamental interests of the Federation can be listed as follows: maintaining nuclear primacy in the region, extending the northern boundary of the Russian continental shelf in order to secure the rights of the Russian Federation to explore and develop the hydrocarbon reservoirs of the seabed, maintaining full control over the Northern Sea Route (NSR), developing known deposits and intensive exploration of polar natural resources.[73] Their exploitation was to commence at the end of December 2012 and in January 2013, but Gazprom postponed the deadline for fall 2013.[74] In addition, the company again has postponed the start of oil production at its Prirazlomnaya field, Russia's first Arctic offshore oil deposit to be developed. The cited reason was delays in the construction of the platform designed to produce the heavy, sour oil from those deposits. This will undoubtedly increase the cost of the project, in which

[72]More on the subject in Sect. 5.2.

[73]In addition, there is mention of a need for a satisfying solution to the dispute over the delimitation of the maritime areas with Norway, which has already been reached; more on the subject in Sect. 7.2.

[74]See: Gazprom przesuwa termin wydobycia ropy z Arktyki, qub, *Reuters*, September 24, 2012. Retrieved October 30, 2012 from http://wyborcza.biz/biznes/1,100896,12545523,Gazprom_przesuwa_termin_wydobycia_ropy_z_Arktyki.html#ixzz2B3f9Kv8h.

Gazprom already invested between $4 and $5 billion USD. But now the concern also cites the excuse that extracting oil from these Arctic fields is questioned by ecologists.[75] The estimated reserves of the field stand at 526 million barrels, and within seven to eight years of starting extraction, Gazprom wants to achieve the estimated annual oil production volume of 6 million ton. It should be also mentioned that due to deficiencies in technology, high cost of the initial investment and low profitability of already discovered fields, the exploitation of oil and gas resources from the Arctic Ocean shelf may not be economically viable for years to come (Zysk 2010, p. 105; Curanović 2010, p. 19). Nevertheless, with the future in mind, the Arctic policy of the Russian Federation concentrates on securing the maximally large strategic reserves. This objective is to be reached by controlling the largest possible part of the Arctic continental shelf. It has a fundamental significance for a country which bases its economy to such a degree on the extraction and export of raw materials, even more so as the state wishes to play a role of a world power in the international arena. Accordingly, on July 12, 2013 the list of federal targeted programs was complemented by the "Socio-economic development of the Arctic zone of the Russian Federation for the period up to 2020".[76] Prime Minister of the Russian Federation, Dmitry Medvedev, officially ordered its inclusion into the list. The main directions of the new state program will be the promotion of integrated socio-economic development of the Russian Arctic, stimulating the development of priority directions of economic growth of the area, and ensuring its environmental safety. The Russian Ministry for Regional Development has been appointed as the responsible executor.

The afore-mentioned issues allow, in my opinion, to state that Russia has indeed made the Arctic a new theater of its geopolitical maneuvering. In 2012, the world learned about the alliance between Rosneft and the biggest American oil and gas company ExxonMobil. The American concern obtained 30 % of shares in the Rosneft's Arctic concessions in the Kara Sea which hold some 4.9 billion tons of oil (nearly the amount in Libya) and 8.3 trillion cubic meter of gas (this deposit would satisfy Europe's needs for 20 years). In exchange, Exxon will finance the preliminary cost of work in the Arctic and let the Russians have shares in its own shale-gas and oil deposits in North America and the Gulf of Mexico. "This cooperation is intended for decades to come—said the Russian President Vladimir Putin, blessing the marriage of Rosneft and Exxon" (Kublik 2013). In February 2012, the two companies expanded their cooperation: Exxon received the shares in new Arctic concessions of Rosneft and in exchange the Russians were offered a 25 % stake in the gigantic American gas field in Alaska.

[75]In September 2012, activists of Greenpeace protested in Moscow against the exploitation of the Prirazlomnaya field.

[76]See The socio-economic development program for the Russian Arctic has been added to the list of state programs 12 July 2013. Retrieved July 17, 2013 from http://www.arctic-info.com/News/Page/programma-social_no-ekonomiceskogo-razvitia-rossiiskoi-arktiki-popolnila-perecen_-gosprogramm.

After contracting an alliance with Exxon, Rosneft signed also agreements on cooperation in the Arctic with the Norwegian concern Statoil and the Italian ENI. The contracts currently negotiated with Asian corporations will provide Rosneft with not only advanced technologies but also the necessary financing allowing Russia to remain the world energy superpower. That, in turn, will strengthen its position in the talks and debates with the already existing partners from the US and Europe.[77]

In addition, should the climate changes be conducive, there are possibilities of undertaking extensive exploration of the Arctic resources and increasing the volume of traffic on the Northern Sea Route[78] which is of tremendous importance not only for Siberia and the entire Russian industry, but also a maritime route of future global significance. The Arctic remains for Russia, a country based on the extensive economy model, the only direction of expansion without violating the international law. And the expansion lies at the roots of every extensive model of economy.

Contemporary Russia wishes to present itself as one of the poles of international politics with the winner/loser attitude of the zero sum game. That proposed image is accompanied by the rhetoric which is to show the adversarial interests of Russia and the West (above all the NATO and the US) and concentrate attention on the potential of a country measured by its military aspect. However, Russia is vitally interested in profits from the exploitation of natural resources. This requires cooperation with other countries and also stability and predictability of mutual behaviors. In practice then, Russian Arctic policy is full of contradictions which render its comprehensive interpretation impossible. It appears to be a product of various interests and visions, compounded by the experiences of the Cold War as well as events and situations in the domestic politics. An additional factor complicating understanding of the Russian policy towards the sub-region is the fact that the political, legal and military issues are treated as one. If we perceive that today's Russia counts on the visibility of its military presence on the seas and in air space, it needs also to be emphasized that it simultaneously tries to abstain from acts violating international law.

In my opinion it is caused by two main reasons:

One: stability and security of the High North are within the vital economic interest of Russia. Any conflicts hindering the extraction and transport of raw materials, or blocking maritime shipping and transport would mean a substantial loss of revenue to the Russian budget;

[77]The geopolitical Arctic card was already played by Moscow in Brussels on February 19, 2013 at the meeting of foreign ministers of the Northern Dimension, i.e. EU, Russia, Iceland, and Norway. According to the daily *Kommiersant*, it was at that meeting that the EU tried to secure support for obtaining the permanent observer status at the Arctic Council. Moscow voted against on the grounds that the EU should be discouraged from joining the Arctic issues as a player from outside the region. Based on Kublik (2013).

[78]More on the subject in Sect. 5.3.

Two: structural weakness of the Russian military due to delays in the modernization and shipbuilding, as well as development of military systems, combined with great reliance on the nuclear deterrent in the defense restrict in practice the real capabilities of using force should a conflict with western countries occur.

All of the above allows for the assessment that Russia is and will be interested in the development of political cooperation, treating military presence as an element of exerting pressure when defining conditions and scope of this cooperation. Keeping in mind its own institutional weaknesses, which in the past rendered cohesive and effective realization of the previous Arctic strategies impossible, this time Russia counts on the coordination of internal and international instruments.

This context can possibly explain the proposal of coordinating the efforts of the sub-regional institutions: the Arctic Council, the Barents Euro-Arctic Council, and the Council of the Baltic Sea States, of which Russia is a member.

It appears to be valid and legitimate to assess that the risk of tensions and conflicts in the High North of which Russia can be a party can be attributed to the conviction of Russian elites considering this area to be of strategic importance to the political position of Russia not only in the sub-region but in the whole world. President Medvedev warned in March 2010, at a session of the Security Council of the Russian Federation, that any attempts at limiting Russia's access to the exploitation and development of Arctic's reserves were not only unacceptable from a legal point of view but also simply unfair considering the country's geographical location and its historical connections with the Arctic.

In my opinion, such an understanding of Russia's policy will always be a product of its overall relations with NATO and EU countries. Therefore, the High North appears to be treated as some sort of "testing ground" for the new distribution of power in the world: it may serve as hostage for the situation in other regions or provide "political leverage" to achieve desired goals in other spheres of relations with the West.

So much for the overall assessment but as for the High North itself, the conclusion is fairly obvious—there exists no other player in the region who as a result of the Arctic competition could win or lose so much as the Russian Federation. And this is exactly what lies at the roots of Russia's increased activity in the region.

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Chapter 7
The High North as the Area of International Cooperation

Abstract The strong commitment of the states to the Arctic matters is considered natural. In this unique and vulnerable region, the Arctic states have not only obvious interests but also a long history of solving problems together. It does not mean, however, that the traditional activity of these states were brought about by the new context of international relations only, or that it is only a result of rich history, or realization of the need for joint actions to meet the challenges and opportunities posed by globalization processes. That region will most probably continue its cooperation to a large degree motivated by and based on its own internal tradition, cohesion and experience. Flexibility and ability of adapting actions to the new needs will remain its strong point. Hence it is hardly surprising that the Nordic states, with their typical pragmatic approach, voice their concern about the developments in the High North. For them this area, and the Arctic in particular, is a sub-region determining social and economic developments, and in which serious and very evident ecological challenges are to be met. For obvious reasons, a special role has been assumed by Norway and Denmark, although all Nordic states are in favor of engaging the EU and NATO in the matters of the High North. Naturally, they are of the opinion that those two organizations are capable of strengthening their own position vis-à-vis the other players, and above all towards the Russian Federation and the USA.

Keywords European high north · Nordic cooperation · Arctic council · EU policy · Role of NATO

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_7

7.1 Cooperation of the Nordic Countries[1]

The current international situation impacts the Nordic states more than ever before. As said in Chap. 6 and to reiterate the point, the development and evolution of the international community also influence the Nordic counties cooperation in the field of politics and economy,[2] as well as their relations with the foreign countries. Moreover, the very structure and the enlargement of the European Union has brought new horizons for cooperation and introduced new issues to the daily agenda.[3] The diversified activity of the Nordic countries, answering the needs of current issues and facing challenges, is characterized by a great variety and broad spectrum of interest.[4] Although the main role in the region is still played by the States, and especially the traditional world powers, gradually more importance is assigned to the point of view of local and regional authorities as well as NGOs promoting environment protection and advocating for the rights of the indigenous peoples. Moreover, there are issues regarding commercial undertakings of big energy companies, ownership, the problems of fisheries, and the interests of shipping companies and tourism industry. In a foreseeable future, the complexity of all those relations and interactions between all the mentioned actors will undoubtedly shape the geopolitics in the High North.

The presence of oil and natural gas deposits in the region diametrically changes the perception of the area the more so as currently energy resources begin to define the potential and power of a given country, from which it is only but a step to the temptation of using them as instruments of realizing the policy of a given State.

Such a situation is quite novel and it poses new problems for the Nordic states. One of the most urgent ones to be faced is undoubtedly the energy security of the Nordic countries, which is directly connected with, among others, deposits of carbohydrates.[5] Some of the Nordic states cannot even dream today about energy self-sufficiency as they simply do not have the adequate resources. But they are capable of increasing their independence by strengthening their cooperation with the partner countries of the region, constructing nuclear power plants and implementing wider use of renewable resources. Such actions, however, tend to be extremely expensive. In order to improve their energy security, they can diversify the type of used fuels and vary the sources of their supplies (different geographical

[1]All Nordic countries, together with Canada, Russia and the US, are members of the Arctic Council. The Nordic Council of Ministers has the status of a permanent observer in the Arctic Council since 1996, i.e. from the time when the organization was first established. More on the subject in The International Nordic Region. The international co-operation of the Nordic Council of Ministers. Nordic Council of Ministers, Copenhagen 2013.

[2]See Total Economy Database (2008).

[3]See Eðvarðsson (2007).

[4]See Ketels (2008).

[5]More on the subject in Czarny (2009).

locations, countries, and companies) as well as technologies employed in energy industry. One should also keep in mind that three out of the five Nordic countries are members of the European Union. Norway and Iceland, on the other hand, are connected with it through membership in the European Economic Area and they are also bound by the agreements resulting from the forms and principles of the Nordic cooperation.[6]

Norway, being one of the biggest suppliers of energy for the EU, does not share the concern characteristic of European discussions on the security of energy supplies. The directive on the security of natural gas supply has not been included in the agreement on the European Economic Area (EEA). However, Norway as a member of the EEA is at the same time bound by the EU regulations concerning the internal energy market. Market cooperation may with time become a much more important instrument in the coordination of the European strategy on the security of supplies (be it only because contracts in the energy market are drawn up by private enterprises) than today's directives in this field. Therefore, a development of the European strategy on the security of energy supply will have impact on the Norwegian energy policy. Norway in this respect is considered to be a strategic partner, indispensable to secure diversification of resources for the continent. "Both sides hold the same position as regards the need of strengthening the cooperation in energy efficiency and security of energy supplies, including the exploration and exploitation activities in the Arctic region" (Dośpiał-Borysiak 2007, p. 107).

In a more general sense, it appears that the most important opportunities for the European countries in the High North, resulting from climate changes, are as follows:

- much easier access to deposits of energy resources;
- greater possibility of exploiting mineral resources, metal ores and development of logging industry; new opportunities for sheep husbandry and agriculture;
- possibility of regular navigation on the Northern Sea Route throughout most of the year;
- development of the Arctic's infrastructure to improve the standard of living there and to support economic development;
- development of tourism and its infrastructure;
- development of international cooperation through already existing international institutions.

On the other hand, the biggest threats may include:

- degradation of the natural environment resulting from the increased presence of people in the region;
- serious risk posed to the unique ecosystem of the Arctic;
- increased risk of disasters, e.g. oil spills;

[6]See Piotrowski (2006).

- exposing the indigenous peoples strongly connected to the natural environment to adverse phenomena of changes in their environment, which may result in disappearance of their unique cultures and appearance of social pathologies;
- increased political tension between states of the region and within them, as a result of potential conflicts over natural resources and environment pollution.

The opportunities and threats are often interwoven and frequently emerge at the same time. In addition, the growing global interest in the Arctic region forced the Nordic states to prepare and develop strategies concerning the High North for the years to come. Some of them are listed below:

- A Parliamentary Resolution on Iceland's Arctic Policy (2011) (eng.utanrikisraduneyti.is),
- Sweden's Strategy for the Arctic Region (Sweden's Strategy 2011),
- The Norwegian Government's High North Strategy (Norway's Strategy 2006) and the High North. Visions and Strategies (Norway's Strategy 2011),
- Denmark, Greenland and the Faroe Islands: Kingdom of Denmark Strategy for the Arctic 2011–2020 (Danish Strategy 2011),
- Finland's Strategy for the Arctic Region (Finnish Strategy 2010),

Through the listed planned actions, it might be possible to maximize the opportunities and limit the threats.

A large part of the land and especially the sea waters of the Norden states lie in the Arctic region. No wonder then that the states deeply engage in the problems of this unique area which is particularly sensitive to changes.[7] The Nordic countries have been cooperating to ensure a higher standard of living for the people inhabiting the northern areas and in particular to improve the opportunities for a social and cultural development of the indigenous peoples of the Arctic. The Norden[8] states also have worked together to preserve the unique and much vulnerable Arctic nature. They have attempted to ensure exploitation of the natural resources of the region in a way that preserves the biological diversity of that part of the world (Sustainable Development 2012).

Currently, it appears that the development of the Nordic cooperation concentrates on the opportunities and challenges brought by globalization among which the most prominent seem to be: energy, environment protection, and the climate. All those are clearly reflected in the actions and initiatives undertaken by the Nordic Council of Ministers. One of the main themes is openness towards neighbors, and those linked to the High North in particular. Nordic cooperation is characterized by the attention paid to the conditions of life in the Arctic and shared approach towards the economy of the northern areas, which can be illustrated, for example, by the

[7]More on the subject in Nordic workshop on action related to Short-lived Climate Forcers Organized by the Nordic Council of Ministers Climate and Air Quality Group. Hans Skotte Møller (Ed.). Nordic Council of Ministers 2013, TemaNord 2012:567. Also available at www.norden.org/en/publications.

[8]More on the subject also in Czarny (2008); also in Czarny (2010).

assistance extended to reindeer husbandry. The cooperation results in advancing our knowledge—based on research, on environmental threats, heavy metals and climate changes in the region (The Arctic 2012). The Nordic support for the Arctic University improves educational opportunities for the representatives of the indigenous peoples. Since the Nordic Council of Ministers advocates transparency and cooperation, it is able to employ important instruments in their activity and has significant resources at its disposal. On an annual basis, many Nordic organizations and associations support the Arctic cooperation.[9]

It can be said that the entire cooperation in the Arctic is run both on parliamentary and governmental levels. Nordic legislators discuss Arctic problems in the Arctic Council. In addition, parliamentary cooperation concerning the Arctic and the Barents Region is realized through standing Arctic committees of parliamentarians (SCPAR).[10] Every other year, they organize Arctic conferences of parliamentarians. Parliamentarians from the seven Arctic countries and representatives of the European parliament are members of the Committee. The intergovernmental cooperation is realized through the Nordic Council of Ministers, the Arctic Council, and the cooperation with the European Union.

The Nordic Council is a regional forum for consultations of the Nordic parliaments, created in 1952. Today, it includes legislators from Denmark, Finland, Iceland, Norway, Sweden, and delegates of the parliaments of the autonomous territories: the Faroe Islands, Greenland, and the Åland Islands (About the Nordic Council 2012). Closely related to it, although completely autonomous in its decisions, is the Nordic Council of Ministers established in 1977 and focused on intergovernmental cooperation (Nordic Council of Ministers 2012).

The High North issues are a major part of the program of this organization due to the geographical, historical, and economic connections linking its members with the Arctic. The first cohesive joint project concerning protection of the environment and cultural heritage of Greenland, Iceland, and Svalbard was established in 1999 (Nordic Action Plan). The very same year, under the patronage of the Nordic Council of Ministers, the Nordic Arctic Research Programme (NARP) was launched to promote cooperation of research centers acting in the Arctic and to sponsor new scientific projects in three thematic areas: "natural processes on land, sea and in the atmosphere," "biological diversity and environmental threats in the Arctic," and "conditions of life of the Arctic's inhabitants." The NARP, operating until 2003, included 63 scientific projects and cost 31 million Danish crowns (Strand 2006, pp. 9–10). A little earlier, i.e. in 1996, the Arctic Cooperation Programme under the auspices of the Nordic Council of Ministers was launched. The Program's objectives were defined as follows:

[9]More on the subject in *Economic value of Nordic ecosystems assessed* (2013).

[10]The Standing Committee of Parliamentarians of the Arctic Region. The latest meeting of the Committee took place in Murmansk on September 19, 2013. See http://www.arcticparl.org.

- improving the quality of life of the region's inhabitants, with special emphasis on the situation of Saami and Inuit, as well as the region's infrastructure;
- maintaining and preserving environmental integrity and promoting sustainable and responsible management of the natural resources;
- joint efforts to limit pollution of land and seas;
- developing methods of cooperation among the Arctic countries (New Arctic 2002, p. 1).

On June 12, 2002, the Program was extended for the period of 2003–2005 to continue the cooperation, and three major priority issues were identified: the indigenous peoples, development of prosperity, and sustainable development (New Arctic 2002, pp. 2–3). In addition, six thematic sections on which the cooperation should focus were approved:

- social welfare, including health issues and equality of genders, particularly amongst the indigenous peoples of the Arctic;
- integration of children and young people into the society;
- development of industry and entrepreneurship with the emphasis on supporting economic development in sparsely populated areas, as well as development of infrastructure and communication systems;
- sustainable exploitation of natural resources;
- environment and power industry;
- culture, education, and training (Stokke 2007, p. 21).

In that period, the process of climate change intensified in the Arctic, especially in the first decade of the 21st century. In the years 2003–2004, the results from research programs financed by the NARP were gradually published. They showed clear impact of climate change on the natural and social environment of the Arctic (NARP Highlights 2005). The growing awareness of new challenges convinced the Nordic Council of Ministers to adapt the Program to tackle the new climate and social conditions. On December 4, 2009, the Program's new version to cover the years 2009–2011 was accepted. The main objectives were defined as follows:

- enlarging the body of knowledge on and the efforts to combat climate change, environment pollution and their impacts on humans and animals;
- improving the quality of life for the Arctic's inhabitants, and the indigenous peoples in particular;
- promoting social and cultural development of the Arctic's population;
- contributing to maintaining the Arctic's environmental integrity and promoting sustainable management of renewable and non-renewable natural resources (Arctic Cooperation 2009).

For the first time ever, and as a top priority, the issue of climate change was mentioned, which proved to be later the main challenge for the policy of the Nordic Council of Ministers on the Arctic. It is definitely a new theme in the Program which could be attributed to the release of the IPCC report in 2007, including the

NARP research data, and gradually more obvious change in the climate of the Arctic.

The latest document of the Nordic Council of Ministers regarding the policy towards the Arctic is so far "Sustainable Development in the Arctic. The Nordic Council of Minister's Co-operation Programme 2012–2014," published on March 5, 2012. It is a continuation of the policy announced in the report of 2009, although as a priority it lists particular care of the people inhabiting the region, which is in accord with the prevalent attitude in the Scandinavian countries of perceiving social welfare and the well-being of individuals as superior overall. The document, in addition, defines five spheres of cooperation:

- *Population*: the Program is to promote sustainable development through finding answers to the challenges posed by urbanization and demographic changes. It is also of utmost importance to secure social cohesion, to battle problems resulting from integration issues, to improve living conditions through public health programs, to fight contagious diseases, and to secure healthy foods. As in every new edition of the Arctic Cooperation Programme, special care is devoted to the indigenous peoples, their living circumstances and their adaptation to the new conditions caused by climate change and globalization;
- *Environment and nature*: the main objective is to protect the unique nature of the Arctic and its biodiversity;
- *Climate*: the Program shall support the initiatives combating climate changes in the Arctic and dissemination of knowledge about their causes. It is also important to create local and regional adaptation strategies and promoting them;
- *Sustainable development of companies*: the Arctic Cooperation Programme shall support development of businesses based on sustainable exploitation of the resources, and of innovative approach, particularly in the field of renewable energy resources, infrastructure, information technology, and communication systems. It is also significant to support the relation between business and the society based on Corporate Social Responsibility;
- *Education and training programs*: the Program shall support initiatives leading to improve the level of education and the qualifications of Arctic's inhabitants, and will support organizations dealing with these issues in the region. Special care shall be given to the indigenous peoples and the young people to make them aware of the challenges and opportunities resulting from globalization and climate change, and means of assisting the Arctic's inhabitants in developing a sustainable society will be provided (Sustainable Development 2012).

The document is a continuation of a constant engagement of the Nordic Council and the Nordic Council of Ministers in developing scientific research and social initiatives in the High North, mindful of the role and significance of the natural environment. It should be noted, however, that these are initiatives which relate almost exclusively to the Nordic part of the Arctic, and it is there that they significantly improve the state of the environment and the socio-economic well-being of the Arctic's societies.

The Nordic Council, or rather the Nordic Council of Ministers, since the latter is much more active in the region, as an institution acting on behalf and for the good of the Nordic sub-region, is particularly devoted to Arctic issues. In its policy, it attempts to address also climate changes through, among other, financing research programs concerning these issues in the High North, and by promoting a sustainable economic and social development. It is so characteristic that a human dimension is always at the fore of all the problems discussed. With a typical Nordic sensitivity towards and care for societal well-being, the Nordic Council supports development of communities and attempts to assist them in benefitting from the climate change as much as possible. Particular emphasis is put on the indigenous peoples, the Innuit and Saami, as they and their lifestyles are most exposed to the threats.

Nordic cooperation on the Arctic is certainly of a broad spectrum and it encompasses many areas, including among others: the environment (New Report Maps 2013), health, energy supply—in other words energy security, culture, education, IT, scientific research, and the economic development. In addition, the Nordic Council of Ministers applies the Arctic Cooperation Programme when working with the states of the Arctic Council, the EU (The EU should 2014), and through its activities within the Barents-Euro-Arctic-Council[11] (*Barentsrådet*). The Council has its own detailed program, strategies and achievements concerning the Arctic. It also has its own committee of experts for the Arctic which develops directives regarding the scope, implementation and continuation of the Arctic activities. The main responsibility for the coordination of actions lies with the ministers for Nordic cooperation. However, in order to launch the undertaking and initiatives concerning activities in the Arctic, they must be first approved by the council of specialized ministries within the frame of the Nordic Council of Ministers.[12]

The strong commitment of the states to the Arctic matters is considered natural. Their initiatives are prepared mostly by the Cooperation Programme for the Arctic (of the Nordic Council of Ministers) which develops projects and actions.[13] In this unique and vulnerable region, the Nordic states have not only obvious interests but also a long history of solving problems together. Denmark, Iceland, Norway, and the Faroe Islands reached an agreement in 2006 on the matter of a disputed area in the North Atlantic, southeast of Spitsbergen. "The point was that in accordance with the Convention on the Law of the Sea, all four could make legitimate claims to it, but they finally reached an agreement" (Topmøde 2008). Norway and Denmark signed a historic agreement on the maritime delimitation of the shelf and sea zones encompassing the area of 150,000 km^2 between Greenland and Spitsbergen

[11]More on the subject at Czarny (2012); Szacawa (2013). Also at http://www.beac.st/in-English/Barents-Euro-Arctic-Council.

[12]For example, the Nordic Council of Ministers for Environment, *Nordiska ministerrådet för miljö* (MR-M), where Nordic cooperation on environment protection is realized.

[13]More on the subject http://www.norden.org/arktis/sk/samarbeidsprogram.as.

(*Aftenposten* 2007). The division was made in accordance with the principle of the so-called Median Line, the very same one advocated by Norway in its negotiations with Russia on the delimitation of disputed zones in the Barents Sea. The agreement does not include the issue of authority over the shelf and the sea.

It does not mean, however, that the traditional activity of the "Norden" was brought about by the new context of international relations only, or that it is only a result of rich history, or realization of the need for joint actions to meet the challenges and opportunities posed by globalization processes. That region, with its distinct Nordic specificity, will most probably continue its cooperation to a large degree motivated by and based on its own internal tradition, cohesion and experience. Flexibility and ability of adapting actions to the new needs will remain its strong point. Hence it is hardly surprising that the Nordic states, with their typical pragmatic approach, voice their concern about the developments in the High North. For them this area, and the Arctic in particular, is a sub-region determining social and economic developments, and in which serious and very evident ecological challenges are to be met. For obvious reasons, a special role has been assumed by Norway and Denmark, although all Nordic states are in favor of engaging the EU and NATO in the matters of the High North. Naturally, they are of the opinion that those two organizations are capable of strengthening their own position vis-à-vis the other players, and above all towards the Russian Federation and the USA.

Hence the Nordic cooperation on the Arctic is needed both in the context of the EU, as well as the regional and global dimensions. Even if there are differences among the Nordic states as regards the region, when the EU is considering what actions should be undertaken in the Arctic, naturally the Norden countries ought to play the leading role.[14] Moreover, a double membership of some countries, both of NATO and the EU, should secure the compliance of the strategic actions with the interests and needs of the Nordic states. The environmental developments in the Arctic have significant impact on the Nordic states. Therefore, in practice this group of countries ought to be entrusted with and responsible for implementing the Union projects in the region. These countries should attempt, if not exert pressure on the EU, to introduce in the region very strict environmental norms on research and exploitation of natural resources. Their well-known reputation in standards of environment protection ought to allow for developing very detailed solutions for the European Union.

In addition, the Arctic Cooperation Programme of the Nordic countries is complemented with their cooperation with Russia which is a neighbor in the same geographical zone. Generally speaking, due to stable, constant and pragmatic relations of the Nordic states with Russia, it is often advocated that these countries should be assigned a leading role in developing the EU strategy towards Russia. An obvious question suggests itself here: Is that strategy clear enough? It is a legitimate question in the situation when Russia does not even try to hide the possibility and its desire to use energy as a political tool to instigate divisions in Europe.

[14]Compare: Käppylä and Mikkola (2013).

It appears that the role to be played by the Nordic countries within the Union towards Russia can be defined as a task to depoliticize (as much as possible) the relations and direct them towards a pragmatic cooperation focused on problem solving. Only Nordic countries have tried regional and trans-border cooperation with Russia, which differentiates them from other states in the Union. Therefore, the Nordic countries keep lobbying in the EU for a new approach towards developing relations with Russia. This approach would discard the notion of a mutually agreed upon grand strategy for cooperation, advocating for basic cooperation and reducing individual barriers to cooperation as they emerge.

For years, such a regular cooperation has built trust and mutual respect on the political level, in business and in a civic society, all of which seems to be particularly significant in long-term Norden–Russia, or EU–Russia relations.

7.2 The Arctic Council's Role in the Region and in the International Arena

7.2.1 The Impact of the Arctic Council on the Change of Image of the Arctic

In order to illustrate the functioning of the Arctic Council, it seems necessary to present at least an abbreviated assessment of its seventeen years of existence (1996–2013, i.e. from the moment of the proposal to establish cooperation in the Arctic Region to the current time of enlarging the number of observers), describe its place and role in international relations and voice an opinion regarding the on-going debate on the future of the Council.

The Arctic Council is the most important forum of cooperation in the Arctic and an excellent example of regional cooperation. The other international organizations acting in the subregion are the Barents Regional Council within the Barents Euro-Arctic Region, and the Council of Baltic Sea States.[15] Those organizations share similar features, i.e. all of them are multidimensional (regional and transnational, as well as international); they are not a subject to international law, and all share the foundation based on the post-Cold War logic of cooperation (Osica 2010, pp. 33–34). In this company, the Arctic Council is superior in the sense that all of the Arctic Eight are its permanent members.[16] The Arctic Council is not a fully-fledged international organization as it is based on "soft" international law. Therefore, in view of the lack of legal international foundation, it is an institution of

[15]The Barents Euro-Arctic Region and the Barents Euro-Arctic Council group all of the Arctic countries although the United States and Canada have only the status of observers. USA and Canada are not members of the Council of Baltic Sea States.

[16]The fact that the Arctic Council has also a representation of the indigenous peoples gives it an additional if not full legitimization to act and decide about the region.

limited possibilities. Nevertheless, it undertakes efforts to strengthen its importance in the region and its position in international relations which recently, for example, found its illustration in the actions by the Danish Presidency affirmed in the Nuuk Declaration. One more limitation of the Council is that its foundation charter forbids the Arctic Council to deal with the matters related to military security (Ottawa Declaration 1996, p. 2).

The practice of its actions, however, allows stating that although the Arctic Council does not possess such structural, decision-making and financial possibilities like other international organizations, it has managed to create an effective platform and forms of cooperation for dealing with Arctic problems at a high political level. The Council is a very important factor in strengthening cooperation in the region, both at the intergovernmental and social level. Moreover, its importance for the region must be appreciated through the change in the image of the Arctic brought about by the Council, and drawing attention of the international community to Arctic's problems, with special emphasis on climate changes.

The Arctic Council to a large degree has contributed to the perception of the Arctic as a precisely delineated region which is very important as it strengthens its position in the global arena. On the basis of *region building*,[17] through organizations and institutions dealing with Arctic matters (Heininen and Southcott 2010, p. 277), it has been trying to secure for the North an order based on sustainable development, environment protection, and stabile social system.[18] It is of utmost importance that this idea in terms of implementation gained the support of the Arctic countries and organizations of the indigenous peoples since the Arctic becomes a phenomenon as regards the geographic and political rapprochement of the Northern states whose decisions are to be made jointly and be of the pan-Arctic range (Heininen and Southcot 2010, p. 277).

The Arctic Council has managed to change the image of the Arctic from the frozen desert to the Arctic in change, as defined by Timo Koivurova (2010, pp. 3–4). The Arctic Environmental Protection Strategy (AEPS) used to work on the basis of the traditional perception of the Arctic as a *frozen desert,* i.e. a sensitive ecosystem, constantly exposed to danger due to the difficult conditions in the region, and requiring proper actions (Arctic Environmetal 1991, pp. 6–7).[19] It never dealt with the issue of the region undergoing intensive transformations.

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[17]The category of *region building* represents a new approach in geopolitics and as a part of the significant trend in international relations, after years of creating nations, focuses on the perception of the map of the world through the perspective of regions.

[18]It is predicted that *region building* in the Arctic will be fully successful if the adjective "local" does not refer entirely to the indigenous peoples but to the North as a whole. More on the subject in Keskitalo, C. Region—building in the Arctic: Inefficient institutionalization? A critical perspective on international region—building in the 'Arctic'. Retrieved August 10, 2012 from http://isanet.ccit.arizona.edu/noarchive/keskitalo.html.

[19]See also Graczyk, P. Outside Actors in the Arctic. The Case of Observers in the Arctic Council. Arctic Frontiers Conference: Socioeconomic and institutional perspectives session, Tromsø 23–28 January 2011, PDF 03. Retrieved October 11, 2012 from http://www.google.co.uk/#fp=17d704e2c490f2ef&nfpr=1&q=Arctic+Environmetal+Protection+Strategy,+Rovaniemi,+Finland.

It must be stressed that the change in the perception of the region into *Arctic in change* was not a direct consequence of the establishing of the Arctic Council. It appeared together with undertaking work on the project titled the Arctic Climate Impact Assessment (ACIA 2005), implemented by the Arctic Monitoring and Assessment Programme (AMAP), and the Conservation of Arctic Flora and Fauna (CAFF), and realized jointly with the International Arctic Science Committee—IASC (Strategy 2000). Throughout the 1990s, analyses of climate change focused on mitigating or even stopping climate change from taking place. Neither the political discourse nor the media even considered adaptation to the on-going changes. The rapid increase in the interest of the international community in climate issues happened only due to the stormy negotiations of the Kyoto Protocol[20] (1997), where the United States was one of the main players. This can explain, to a degree, the important role the US was willing to play, at the time of its presidency, in producing ACIA (Koivurova 2010, p. 4) within the Arctic Council.

The goals and principles of ACIA were defined in the Implementation Plan approved at the ministerial meeting in Barrow in 2000 (Barrow Declaration). According to the Plan, the main goals of AMAP are:

- to evaluate and synthesize knowledge on climate variability and change and increased ultraviolet radiation, and the consequences resulting from these phenomena;
- to provide governments, organizations and the inhabitants of the Arctic reliable and useful data to support policy-making processes and the work of the Intergovernmental Panel on Climate Change.[21]

In 2004, an extensive ACIA document was published, called Impacts of a Warming Arctic: Arctic Climate Impact Assessment (ACIA 2000, p. 6), which contains the main observations on climate change in the Arctic. The Report presents the following findings:

- Arctic climate is now warming rapidly and much larger changes are projected;
- Arctic warming and its consequences will have worldwide implications;
- Arctic vegetation zones are very likely to shift;
- Animal species diversity, ranges, and distribution will change;

[20]The Kyoto Protocol is a supplement to the United Nations Framework Convention on Climate Change (UNFCCC) signed in Rio de Janeiro in 1992. The protocol is an international treaty that sets binding obligations on industrialized countries to fight global warming and reduce emissions of greenhouse gases, which became binding in February 2005. The protocol has witnessed many controversies, including the non-ratification choice made by the USA, exemptions for China, and the withdrawal of Canada in 2011. See Protokół z Kioto do ramowej konwencji Narodów Zjednoczonych w sprawie zmian klimatu. Retrieved August 12, 2012 from http://nape.pl/Portals/NAPE/docs/akty_prawne/prawo_polityka/prawo/Protokol_z_Kioto.pdf.

[21]IPCC—Intergovernmental Panel on Climate Change is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988. See IPCC, at http://www.ipcc.ch/organization/organization.shtml#.UEoyc_Jz9AA. Retrieved August 12, 2012.

- Many coastal communities and facilities face increasing exposure to storms;
- Reduced sea ice is very likely to increase marine transport and access to resources in the Arctic;
- Thawing ground will disrupt transportation, buildings, and other infrastructure;
- Indigenous communities are facing major economic and cultural impacts;
- Elevated ultraviolet radiation levels will affect people, plants, and animals of the Arctic;
- Multiple influences interact to cause impacts on people and ecosystems in the Arctic (Hassol 2004, pp. 16–17).

The ACIA program provided the first analysis of climate changes in the region, which also focused on the consequences for the local community. The report has drawn attention of the public opinion to the fact that in the Arctic climate warming happens at twice the global rate and some of its consequences are irreversible, and already pose a serious problem for the society and ecosystems. By virtue of the activities of the Arctic Council, the sphere of its interest has become perceived as a region in which a process of major transformation has already begun (Koivurova 2010, p. 4).

7.2.2 Ecological Cooperation

The afore-mentioned limitations of organizational and regulatory nature have not managed to prevent the Council from registering multiple accomplishments mainly in the fields of environment protection and sustainable development.

In this context, it seems that it is never enough to emphasize that the Arctic is an area characterized by rich biological diversity where many endangered species protected by special laws exist. The fundamental goals of the Arctic Council assigned to it by the Ottawa Declaration are closely related to the issue. They are environment protection and sustainable development realized by the Council on its operational level mainly through working groups and their programs supported by scientists, experts and researchers from all over the world. They conduct research mostly within the areas of measuring the levels, and assessing the effects of anthropogenic pollutants in all compartments of the Arctic environment, to which a series of reports pertains,[22] controlling and eliminating marine pollution from land-based activities (RPA 2013), climate changes in the Arctic (Arctic Climate), protecting the Arctic from the environmental effects caused by offshore oil and gas activities (Arctic Offshore 2009), monitoring and assessment of Arctic biodiversity (CBMP 2013; ABA 2013) and maritime navigation (AMSA 2009), and assessing

[22]Among others: Arctic Pollution Issues: A State of the Arctic Environment Report of 1997. http://www.amap.no/documents/doc/arctic-pollution-issues-a-state-of-the-arctic-environment-report/67 and AMAP Assessment Report: Arctic Pollution Issues of 1998. Retrieved November 03, 2013 from http://www.amap.no/documents/doc/amap-assessment-report-arctic-pollution-issues/68.

human well-being covering the entire Arctic region.[23] Data gathering and generating information on the environment by the Arctic Council are very significant accomplishments of that body, which significantly impact international negotiations and even global treaties on environment protection. The attempts of the Council's members brought success in the form of signing the Stockholm Convention on Persistent Organic Pollutants (POPs) of May 2001.[24] The Council has also significantly contributed to the research on climate changes in the Arctic which, as said before, occur in this region much faster than in other parts of the world.[25] These instances of accomplishments of the Arctic Council in the fields of environment protection shed some light on the magnitude of its contribution into the development of research and ecological cooperation in the region and justify the statement that the Council is truly an effective forum of intergovernmental cooperation in environmental protection and sustainable development of the Arctic. The Council promotes and coordinates ecological research, and constitutes a platform for a dialogue grouping all the Arctic states, representatives of indigenous peoples, non-Arctic actors and NGOs. Moreover, the effects of the Council's work on the level of working groups credit it with rich scientific and research achievements based on knowledge, experience and the best practices.

[23]Arctic Human Development Report—AHDR was approved at the ministerial meeting in Inari in 2002 as a priority project for the Icelandic Presidency. It was to create a foundation based on comprehensive knowledge for the program of sustainable development of the Arctic Council, drawing from, among others, the accomplishments of the program and the traditional knowledge. The Report was published in 2004 and it focuses on the following issues: human development in the Arctic, demographics, culture, political and economic systems, management of natural resources, chances of staying on the market, human health and well-being, education, social and cultural gender issues, international relations of the circumpolar region, and geopolitical issues. See Einarsson et al. (2004). Currently, there already exists AHDR II. See AHDR II: Regional Process and Global Linkages. http://www.svs.is/AHDR%20II/AHDR%20II.htm. Retrieved December 20, 2013, and Arctic Resilience Interim Report 2013, published by Stockholm Environment Institute and Stockholm Resilience Centre. Retrieved December 12, 2013 from http://www.sei-international.org/mediamanager/documents/Publications/ArcticResilienceInterimReport2013-LowRes.pdf.

[24]See http://www.mos.gov.pl/g2/big/2009_04/ab95caa99b30b484eaeaecd683d8fa11.pdf. Retrieved October 02, 2013. See also Koivurova and Van der Zwaag (2007).

[25]According to the findings of the National Snow and Ice Data Centre, the area covered with sea ice in the Arctic has reached its smallest coverage since 1979. Some experts claim that by the year 2016 the Arctic Region will be ice free. See Pole glancing at http://www.economist.com/blogs/graphicdetail/2012/08/daily-chart-11. Retrieved August 04, 2012.

7.2.3 The Participation of the Indigenous Peoples

It is important to note that many actors grouped in the Arctic Council participate in the development of the concept of *region building* in the Arctic. Among others, these are politicians, officials, scientists, and NGOs—mainly those representing the indigenous peoples. The indigenous community plays a very significant role as they cement the building of an Arctic identity in the region.

One of the main differences between the Arctic Environmental Protection Strategy (AEPS) and the Arctic Council was placing the organizations of the indigenous peoples in the structure of the latter (Koivurova 2010, pp. 2–3). In AEPS, such representations had only observer status, equally with non-Arctic countries and other organizations. The Ottawa Declaration assigned to the organizations of the indigenous peoples a unique status of Permanent Participants which obligates member countries to consult fully with them before making a decision on the consensus principle (Ottawa Declaration, point 2).

The true sign of the Council's desire to significantly involve the indigenous people in its work was placing the Indigenous Peoples Secretariat (IPS) under the auspices of the Arctic Council.[26] IPS supports indigenous peoples in their actions and coordinates meetings of their representatives. The indigenous peoples have a strong representation in the working groups of the Council and their activities are mostly visible in initiatives pertaining to climate change. They participate in varied entities at the global level, as well as in meetings at a high level such as those organized by the UN Secretary General, or the dialogue on climate changes at the Aspen Institute[27] led by Madeleine Albright (Somby 2008).

A joint presence of the indigenous peoples in the Arctic Council helped strengthen the feeling of common identity and their common identification as the indigenous peoples of the North. Permanent participants cooperate in the work to prepare political projects and present a common stand in international negotiations, e.g. the coalition of the indigenous peoples at the negotiations on POPs.[28] Another important undertaking to support culture of the indigenous people is the Arctic Indigenous Languages Symposium organized within the Arctic Council and included in the plan of action of SDWG (2011).

The Arctic Council has certainly played a significant role in engaging the indigenous community into decision making processes in the Arctic. Obviously, as regards this issue there are also critical voices. Many organizations of indigenous people do not have their representation in the Council and the number of Permanent Participants cannot be enlarged as the letter of the Ottawa Declaration says that the number of Permanent Participants should at any time be less than the number of member states (Ottawa Declaration, p. 3) which means that there is only one more spot in the Council for a Permanent Participant. In addition, indigenous peoples

[26]Initially, the Secretariat functioned within the AEPS.

[27]See http://www.aspeninstitute.org. Retrieved August 10, 2012.

[28]More on the subject in Koivurova and Van der Zwagg (2007, p. 159).

have voiced their dissatisfaction as regards limited involvement of their representatives in the work of ACIA where the indigenous knowledge and experience could be very useful (Kankaanpaa 2012, pp. 100–102).

7.2.4 The Arctic Council: Its Future and the Forthcoming Challenges

If to measure the effectiveness of an institution in terms of its ability to prevent problems, one could say that the Arctic Council realizes a political mobilization through actions undertaken by member states in response to recommendations made by the working groups. Their reports often times influence decisions made by the Arctic countries, pertaining to the region. The Arctic Council's effectiveness can be proved by its successful attempt of including indigenous people into the consultations regarding the Arctic Region. The status of Permanent Participants, enjoyed by organizations representing indigenous peoples, has contributed to the development of cooperation not only between the Arctic states and the local communities but also among all people inhabiting the Arctic (Ronson 2011, pp. 99–100).

As a region of rapid changes and transformations, the Arctic has become an important place on the map of our globe. Therefore, it definitely needs an efficient and effective management. The Arctic Council, grouping the major players, both regional as well as non-Arctic ones, appears to be an institution best suited to tackle the task. Although by such actions as establishing a Permanent Secretariat and signing the first legally binding agreement the Arctic Council seems to present all the features of an international organization, it is a long road ahead before a full transformation becomes a reality. The Arctic Council has to face such problems as lack of cohesive communication between the Council's components, clear identification in the international arena, or the necessity of precise defining the roles of its separate members. The evolution of the Arctic Council appears to be inevitable but the question is what it is going to evolve into? This is bound to happen as the level of cooperation reached so far does not seem to be satisfactory to any of the parties.

At the Arctic Council's 7th Ministerial Meeting, the Nuuk Declaration was signed in the capital of Greenland on May 12, 2011. Overall, the Danish Presidency brought forth many significant changes which may be perceived as an attempt at a gradual reform of the Arctic Council. Among others, the most important ones seem to be: a decision on establishing the Permanent Secretariat of the Council[29] in Tromsö and acceptance of the Agreement on Cooperation in Aeronautical and

[29]The reason to create the Permanent Secretariat was to strengthen the position of the Arctic Council in the rapidly changing region, mainly due to climate warming. Norwegian Tromso was chosen for its headquarters, which is a proof of appreciation for the work of the temporary secretariat which had functioned there since 2006, i.e. during the presidencies of Norway, Denmark, and Sweden. It also important that the Secretariat was able to secure institutional

Maritime Search and Rescue in the Arctic,[30] which was the first legally binding agreement prepared under the auspices of the Arctic Council (Nuuk Declaration 2011, p. 2). Another important step was taken at a meeting in Kiruna in May 2013, which was the second legally binding agreement, according to which the members would prepare and coordinate a response to potential spills that could result from the increasing oil and gas exploration.[31]

The Nuuk Declaration established the Task Force for Institutional Issues (TFII) to implement decisions pertaining to the strengthening of the Council, including all the necessary actions to create the Permanent Secretariat (Nuuk Declaration 2011, p. 2). TFII is responsible, among others, for the revision of the Rules of Procedure, development of administration for the Secretariat, defining the scope of its cooperation with the host country, budget preparation, and human resources issues (Task Force 2011, p. 56).

Since the Arctic Council is not an international organization in the understanding of international law, but only an institution based on soft law, the establishment of the Permanent Secretariat has opened up possibilities of deepening the cooperation above all at the intergovernmental level (Sellheim 2012, pp. 62–67). This allows forming an opinion that the Permanent Arctic Council's Secretariat will provide a solid administrative base for the realization of the Council's objectives and allow for a stable and effective development. It will also serve as a useful platform for enhancing communication and information exchange with other relevant international organizations and fora of cooperation.

Together with the Secretariat, for the first time in history a budget was established as well as the rules of financing. Is that a significant step towards institutionalizing the Arctic Council? Undoubtedly, it is an important part but not entirely constitutive. Practically, it makes the Council something more than a high level forum of cooperation, but still not quite yet an international organization. Hence the question whether the Secretariat is to be a managing body or only a tool strengthening the dialogue among the states of the Arctic Eight?

The acceptance of the first and second legally binding agreements under the auspices of the Arctic Council combined with the efforts of non-Arctic states to gain the status of observer at the Council certainly prove the growing importance of the Council in the international arena. It is undoubtedly perceived as the most important forum of cooperation in the region by state governments as well as the public opinion. But that breeds another question: Will the Secretariat service the states of the observer status, particularly in view of possible enlarging the Council by the

(Footnote 29 continued)

memory, the lack of which used to present a significant problem for the Council; more on the subject in Haavisto (2011).

[30]The full text of the document is available at http://www.ifrc.org/docs/idrl/N813EN.pdf. Retrieved October 09, 2013.

[31]Canada, which will hold the presidency for the two upcoming years, wants also to create a business forum to promote trade development among the indigenous peoples throughout the entire Arctic.

non-region countries, or will it be and an exclusive organ of the Arctic states? The Secretariat's relationship with the Permanent Participants and their Indigenous Peoples Secretariat (IPS) is far from clear. Although the role of the Arctic Council's Secretariat is not yet fully defined, its establishing is a form of institutional security measure in the much complex and rapidly changing reality of the Arctic Region. In addition, it is a very important step should the Arctic Council be transformed into a full-fledged international organization (Sellheim 2012, pp. 68–76).

Established in 1996 as a body to coordinate Arctic policies, the Council had been considered for many years as platform for scientific research. It grew in importance together with the increase in expectations that the melting ice will open access to the deposits of resources (including the inshore large deposits of oil) and make many maritime routes increasingly available.[32] Today, to this regional forum the following countries and organizations belong or await to be accepted (Fig. 7.1).

Among 14 states and organizations seeking observer status at the latest meeting in Kiruna in May 2013 was China whose growing interest in the Arctic certainly emphasizes the geopolitical importance of the region. Admitting new subjects and granting them observer status is the prerogative of the Council composed of eight permanent members: USA, Canada, Russia, and the five Nordic states.

It is exactly for the support of the "Nordic Five" that China[33] had been so dynamically if not aggressively vying, the more so as Canada voiced its reservation in fear of the expansion of the "Center of the World." For a long time, the American position was not clear,[34] while Russia agreed in view of and the hope for "the increased economic, and perhaps military, potential of the vast stretches of Arctic territory within and north of their borders" (Emmerentze Jervell and McDonald 2013). Symptomatic is the opinion voiced by Malte Humpert, Executive Director of the Arctic Institute, an independent think tank from Washington D.C., who stated: "Joining the council is more a political statement from countries like China," particularly when it concerns "the idea of having a seat at the table in a region that is likely to become another realm of geopolitics" (Emmerentze Jervell and McDonald 2013).

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[32]This opinion has been confirmed by Barth Eide, Norwegian Minister of Foreign Affairs, who stated: "Now the council is not only a club for the ones who are especially interested, it's the central organ in the whole world when it comes to Arctic issues." Quoted after: Emmerentze Jervell E. and McDonald A. Six Nations Win Seats on Arctic Council, Retrieved July 10, 2013 from http://online.wsj.com/article/SB10001424127887324767004578484621098493056.html#project%3Darctic051520130515%26articleTabs%3Darticle.

A version of this article appeared May 16, 2013, on page A8 in the U.S. edition of *The Wall Street Journal*, with the headline: Six Nations Win Seats on Arctic Council.

[33]More on the subject also in Chap. 2.

[34]On May 10, 2013 the White House revealed the national strategy concerning the Arctic Region, promising the realization of its security interests, environment protection in the Arctic, and strengthening international cooperation in a "changing" Arctic. More on the subject in Arctic Body Comes in From the Cold. *The Wall Street Journal*, May 14, 2013, p. A 16. See also Jarocki, M. Nowa strategia arktyczna USA. *FAE Policy Paper. no. 18/2013*.

Participant	Country or Organization	Status	Year Joined
Canada	Country	Chair	1996
Denmark	Country	Member State	1996
Finland	Country	Member State	1996
Iceland	Country	Member State	1996
Norway	Country	Member State	1996
Russia	Country	Member State	1996
Sweden	Country	Member State	1996
United States	Country	Member State	1996
Arctic Athabaskan Council (AAC)	Organization	Permanent Participant of the Arctic Council	1996
Aleut International Association (AIA)	Organization	Permanent Participant of the Arctic Council	1996
Gwich'in Council International (GGI)	Organization	Permanent Participant of the Arctic Council	1996
Inuit Circumpolar Council (ICC)	Organization	Permanent Participant of the Arctic Council	1996
Russian Association of Indigenous Peoples of the North (RAIPON)	Organization	Permanent Participant of the Arctic Council	1996
Saami Council (SC)	Organization	Permanent Participant of the Arctic Council	1996
France	Country	Observer	1996
Germany	Country	Observer	1996
The Netherlands	Country	Observer	1996
Poland	Country	Observer	1996
Spain	Country	Observer	1996
United Kingdom	Country	Observer	1996
International Federation of Red Cross & Red Crescent Societies (IFRC)	Organization	Observer	1996
International Union for the Conservation of Nature (IUCN)	Organization	Observer	1996
Nordic Council of Ministers (NCM)	Organization	Observer	1996
Nordic Environment Finance Corporation (NEFCO)	Organization	Observer	1996
North Atlantic Marine Mammal Commission (NAMMCO)	Organization	Observer	1996
Standing Committee of the Parliamentarians of the Arctic Region (SCPAR)	Organization	Observer	1996
United Nations Economic Commission for Europe (UN-ECE)	Organization	Observer	1996
United Nations Development Program (UNDP)	Organization	Observer	1996
United Nations Environment Program (UNEP)	Organization	Observer	1996
China	Country	Observer	2013
Italy	Country	Observer	2013
Japan	Country	Observer	2013
South Korea	Country	Observer	2013
Singapore	Country	Observer	2013
India	Country	Observer	2013
European Union	Organization	Applying for observer status	NA
Oceana	Organization	Applying for observer status	NA
Association of Oil and Gas Producers (OGP)	Organization	Applying for observer status	NA
OSPAR Commission	Organization	Applying for observer status	NA
Greenpeace	Organization	Applying for observer status	NA
International Hydrographic Organisation (IHO)	Organization	Applying for observer status	NA
World Meteorological Organization (WMO)	Organization	Applying for observer status	NA
Association of Polar Early Career Scientists (APECS)	Organization	Applying for observer status	NA

Fig. 7.1 A full list of participants and their status

Finally, the Arctic Council granted observer status to six countries, including China, stating that the Council will concentrate mainly on research and its members hope to shape the growing prospects for resources and trade development. Stressing that the region is an object of growing interest of business, the final declaration of the Council talks of "the central role of business in the development of the Arctic." The decision was made in Kiruna, after long night discussions (in the small hours of May 15, 2013) with the participation of eight ministers of the Arctic states (the Arctic Council's member states), including the US Secretary of State, John Kerry. Canada rejected the EU bid for observer status because of a long-lasting dispute regarding seal hunting and the ban on trading seal products introduced by Brussels.

When justifying the objection, Canada's representative, Leona Aglukkaq (who was brought up in the Arctic), Minister of the Canadian Northern Economic Development Agency, stated: "This issue is very near and dear to a lot of Inuit," and added that "Canada will resist the EU's bid until 'a satisfactory agreement' has been reached" (Emmerentze Jervell and McDonald 2013). The Canadian opposition was commented on by Catherine Ashton, the High Representative of the Union for Foreign Affairs and Security Policy, and Maria Damanaki, EU Commissioner for Maritime Affairs and Fisheries, who issued a joint statement announcing that the EU will very quickly work with the Canadian authorities "to address the outstanding issue of their concern" (Emmerentze Jervell and McDonald 2013).

The existing situation clearly shows the interest of non-Arctic entities which in turn proves that the Council is perceived by the international community as the most important forum of cooperation in the region. In addition, there is a growing number of countries with no geographical or historically motivated interests in the region which are trying to gain the observer status in the Council.[35]

Considering the situation, what does the future look like for the Arctic Council? There is no doubt that the Arctic Council is the most competent and legitimate body to assume the role of a "quasi government of the Arctic." But it must be fully emphasized that the member countries of the Arctic Council wish to decide about the future entirely and exclusively within their own group. In addition, they are afraid that admitting too many participants may eventually bring the danger of assigning the Arctic the status of the "common heritage of mankind," following the example of Antarctica. Such fears have been confirmed by the new and much stricter set of rules and regulations regarding the rights and obligations of observers accepted at a ministerial conference of the Council. The comment made by the Russian Minister of Foreign Affairs, Sergey Lavrov, dispels all illusions: "In the document accepted by us it has been pointed out that only the Arctic countries have prerogatives to conduct matters in our common home, and those interested in the cooperation within our region will have to act following the rules formulated by the eight Arctic states" (Szypowski 2011). Hence a simple conclusion that Canada presiding currently in the Council has a huge challenge to face. The time has come for the discussions on the Council's reform and they are to decide either to strengthen it, for example to transform it into an international organization, or allow it to erode. It is very difficult to predict which path the Canadian presidency will take.

It is absolutely certain that in view of the much intensified and dynamic international relations in the region, the Arctic Council will have to make a decision whether to preserve its original status of a forum dealing mostly with ecological issues, or following the wishes and under the permission of the member states assume a more political role and engage in coordinating, for example, economic matters.

[35]It pertains not only to such important players in the international arena like China, South Korea, Japan, or the European Union, which a long time ago applied for observer status, but also to other members of G20, India and Brazil, which consider applying. More on the subject in Collins (2012).

7.3 The EU and the Arctic

7.3.1 Northern Dimension as Element of the EU Policy

For the major part of their existence, European Communities had not shown much interest at all in the Arctic and its issues. Until the enlargement of 1995, their activities in the region were only connected with initiatives related to limiting whaling, sealing, trapping, and fishing along the coast of Greenland, which led to the decision of this autonomous region to renounce EU membership (Airoldi 2008, p. 9). After the accession to the EU of the Republic of Finland and the Kingdom of Sweden in 1995, the necessity of systematized policy towards the High North proved to be unavoidable. Especially the former country called for establishing a special program of cooperation involving the regional states and the whole of the EU, which was motivated by the desire to play a leading role in such an undertaking. In 1997, the Northern Dimension was proposed, aimed at providing a common framework for the promotion of dialogue and strengthening cooperation, well-being and sustainable development in northern Europe (Airoldi 2008, pp. 17–18). The first directives of the Dimension were developed in 1999 and it was to encompass the area from Iceland and Greenland to north-west Russia and from the Arctic region to the southern shores of the Baltic Sea. The focus was on the non-EU Baltic countries and the Kaliningrad Oblast.

The first ND Action Plan 2001–2003 and the second ND Action Plan 2004–2006 were developed, within which the Northern Dimension Environmental Partnership (NDEP) and the Northern Dimension Partnership in Public Health and Social Well-being (NDPHS) were established. The projects soon lost their momentum due to clear lack of interest among the majority of the EU countries. Finland, assuming the presidency in 2006, made its revitalization one of the priorities. A "renewed" North Dimension is based on a wider international cooperation of the EU, Iceland, Norway and Russia, with the involvement of a number of other participants and actors from the other northern regional international organizations to representatives of indigenous peoples—and with Canada and the US as observers (Airoldi 2010, p. 46). The old programs were to be continued and new ones were launched: the ND Partnership for Transport and Logistics (NDPTL) and ND Partnership on Culture (NDPC). The development of the "ND Arctic Window"[36] was proposed as part of the Northern Dimension dedicated entirely to problems of international cooperation in the High North.

In spite of concluding in 2006 the activities set out in the Second ND Action Plan, the policy did not come to a complete standstill. The first signals of its

[36]See Joint declaration by the European Community, on the one hand, and the Home Rule Government of Greenland and the Government of Denmark, on the other, on partnership between the European Community and Greenland, Official Journal of the European L 208/3 EN, July 29, 2006. Retrieved June 12, 2013 from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:208:0032:0036:PL:PDF.

continuation were presented at the conference titled *The Northern Dimension of the EU. The Next Phase* which was organized in Iceland in December 2005. It was then that the need for establishing solid legal framework allowing for a better functioning of Northern Dimension was advocated. That demand was fulfilled during the Northern Dimension Summit in Helsinki in 2006. The Political Declaration on the Northern Dimension Policy and the Northern Dimension Policy Framework Document, accepted at the meeting, serve as the basis for the Northern Dimension. It should be emphasized that these were legal acts of permanent nature unlike the earlier plans of action valid only within a certain timeframe.

The new fundaments of functioning for the EU Northern Dimension,[37] which became binding at the beginning of 2007, were discussed at the Parliamentary Conference in Brussels on 28 February–1 March 2007. The participants welcomed the new legal framework for the cooperation in the North and supported the creating a Northern Dimension Parliamentary Forum (NDPF 2007) which was to improve the role of the parliamentarians of the Northern Dimension region in the implementation of the new Northern Dimension policy. The initiative also officially called on the President of the European Parliament and the Speakers of the Parliaments of Iceland, Norway and Russia to prepare for the arranging of the Northern Dimension Parliamentary Forum. The newly formed body had its First Northern Dimension Parliamentary Forum in Belgium on 25–26 of February 2009 (www.ryszardgorecki.pl). It was opened by the then head of Parliament, Hans-Gert Pöttering. The forum was established to better coordinate the somewhat unstructured overlap of competencies between parliamentary fora in the northern regions. Representatives of over 200 Northern Dimension partners took part in it, including 100 parliamentarians from the EU countries, Norway, Iceland, Russia, and also the US and Canada. In addition, many representatives of various European institutions were present. Senator prof. Ryszard Górecki represented Poland. Together with the initiative of establishing a Parliamentary Forum, the representatives of the northern states gathered in Brussels emphasized the significance of non-EU countries' engagement into the new policy of the Northern Dimension. From a Norwegian point of view, the Arctic and sub-arctic areas encompassing the Barents Region were considered of utmost importance again. It is exactly in that region that the effects of climate change have a major impact on sustainability of the lives of Arctic people. In this context, the Conference of Parliamentarians of the Arctic Region's in its resolution of 4 August 2006 called for the adoption of a clear cut, visible and dynamic Arctic policy within the Northern Dimension (NDPF). The parliamentarians also called attention to the principles of financing the realization of the Northern Dimension policies. They should be co-financed by the states of the EU, ND partners as well as international and private financial institutions. The representatives welcomed also the setting-up of the new European Neighbourhood Partnership Instrument (ENPI) which was to streamline the funding to implement the Northern Dimension policy.

[37]More on the subject in Czarny and Tomala (2009).

The afore-mentioned parliamentary conference is not the only illustration of the assertion that the policy of Northern Dimension did not come to an end together with the conclusion of the 2004–2006 plan. Within the frame of Northern Dimension a meeting at the level of deputy ministers took place in Stockholm on November 12, 2009, which resulted in developing consecutive plans for cooperation. Among others, the new Northern Dimension Partnership on Transport and Logistics (NDPTL) and Northern Dimension Partnership on Culture (NDPC 2009) were discussed. They were supposed to start functioning fully in the early 2011. In addition, the issues connected with the Northern Dimension Environmental Partnership (NDEP) were deliberated. The field of environment noted successful actions in northwestern Russia in improving nuclear safety and in water treatment. The flagship project supported by the Fund included construction of the St. Petersburg Southwest Wastewater Treatment Plant. The investment was of key importance in improving the state of natural environment in the entire Baltic Sea region. At the meeting in Stockholm, the Northern Dimension Institute (NDI) was established, through the cooperation of Russian and Finnish universities, and the Northern Dimension Business Council (NDBC 2013). The consecutive series of ministerial consultations took place in the fall of 2010 and were hosted by Norway.

The actions undertaken after 2006 show that the Baltic Sea states were still very much interested in participating in the Northern Dimension. A certain regularity concerning the level of engagement can be observed: whenever the EU Presidency is assumed by a Scandinavian country, the issue of Northern Dimension seems to gain greater visibility and momentum. Such was the case in the second half of 1999 when Finland presided, and then in 2002 when Denmark held the presidency, and again during Finland's reign in 2006. The latest intensification of work on Northern Dimension took place in the second half of 2009 when Sweden presided. Apart from the already mentioned initiatives, there have been several meetings on a less formal level, for example a seminar on the "Northern Dimension Sub-state cooperation" which was convened in Helsingborg on 26 November 2009.[38] Looking at this sort of regularity, the Northern Dimension once again was "favored" in the first half of 2012 during the presidency of Denmark. It should be stressed that it still constitutes an integral part of the European Union's foreign policy and actions undertaken within its frame are of constant nature. Presidencies held by the Scandinavian countries only intensified the work.

[38]More on the subject at Northern Dimension and sub-regional cooperation with special focus on the Baltic Sea region—seminar in Helsingborg on 26 November. Retrieved May 24, 2010 from http://www.se2009.eu/en/meetings_news/2009/12/14/northern_dimension_and_sub-regional_cooperation_with_special_focus_on_the_baltic_sea_region_seminar_in_helsingborg_on_26_november.

7.3.2 *Evolution of the EU Policy Towards the Arctic*

Assuming that development of a coherent foreign policy and security issues is a gradual process, one could pose a question whether it is truly so in a geopolitical perspective.

Is the European Union a consistent player in the High North? In my opinion, possible comments are nicely summarized in the statement made by Łuszczuk (2010, p. 158): "It should be noted that in the first half of the 1990s the European Commission was among the founders of the Council of the Baltic Sea States (1992) and the Barents Euro-Arctic Council (1993). Since it had not shown interest in the Arctic Council, created in 1996, one can assume that those were political choices and decisions reflecting the current then approach towards polar regions. Following the enlargement to Finland and Sweden in 1995, the EU had to deal more carefully with the issues and challenges concerning the northern tips of the new member countries, which since then became the Union's northern borderlands." It was undoubtedly one of the landmarks which decided about the evolution of the EU policy towards the High North, and the change was so significant that today the policy of the European Union towards the European part of the High North appears to be the most interesting and best developed out of all international organizations. This may seem peculiar as no state of the Community borders directly with the Arctic Ocean. Greenland, despite being an autonomous part of the Kingdom of Denmark, is not part of the EU. Its relations with the Union are regulated by a separate treaty (Kubiak 2012, p. 280). Perhaps just because of that the EU policy towards the High North attempts to balance all the aspects resulting from climate changes and not to be related to temporary political and economic interests.

In spite of the fact that with time Northern Dimension turned its attention to the relations between the EU and the Russian Federation, the Arctic problems found another way to become a point of interest for the Community. In March 2008, a High Representative of the Union for Foreign Affairs and Security Policy and the European Commission issued a joint report called "Climate Change and International Security, Paper from the High Representative and the European Commission to the European Council" analyzing the impact of climate change on international security. It was noted there that the rapid melting of the polar ice caps in the Arctic will probably lead to the opening of new shipping routes in the North. In addition, the increased accessibility of the enormous hydrocarbon resources in the Arctic region is changing the geo-strategic dynamics of the region with potential consequences for international stability and European security interests. Some attention was also given to the planting of the Russian flag on the seabed at the North Pole which, according to the High Representative, may indicate the start of a new phase of disputes over territorial claims. All of the above should instigate a debate on the Arctic challenges and developing own Arctic policy (Climate Change 2008).

Also the European Parliament decided to voice its position on the Arctic and did so in its "Resolution on Arctic Governance" which sets out the concerns of the

Parliament for the environmental, geopolitical and social consequences of climate change in the Arctic, and expressed the hope that the forthcoming Commission communication on the Arctic would "lay the foundations for a meaningful EU Arctic policy" (EP Resolution 2008). It also called for international negotiations designed to lead to the adoption of an international treaty for the Arctic modeled on the Antarctic Treaty of 1959, which stirred quite a controversy internationally. That resolution, however, was not an expression of the political will of the EU and was in no way legally binding for other EU bodies (Airoldi 2010, pp. 19–20).

In response, in November 2008, the European Commission presented its communication titled "The European Union and the Arctic Region"[39] which contains an extensive and comprehensive project on the future Arctic policy of the EU. Hence it is a very important turning point[40] in the approach of the EU towards the Arctic region. It points out that Arctic challenges and opportunities will have significant repercussions for the life of European citizens for generations to come. Authors of the document attempted to address in a coordinated and systematic manner the key directions of development and actions within the future Arctic policy of the EU and confirmed the inextricable links between the EU and the Arctic region. Therefore, in their opinion, the Community has the right and duty to pursue policies to mitigate climate change. In view of which, the main policy objectives or goals as regards the Arctic should be:

- **Protecting and preserving the Arctic in unison with its population**, realized through preventing and mitigating the negative impact of climate change on the natural environment, extending support to indigenous peoples, research and monitoring of changes in the region, and promoting cooperation in sustainable use of energy resources and use of renewable sources for energy production;
- **Sustainable use of natural resources**, and particularly of hydrocarbon reserves; sustainable development of fisheries, transport and tourism;
- **Contributing to enhanced Arctic multilateral governance**, including actions not to support arrangements which exclude any of state member of the European Community, European Economic Area, European Free Trade Association; the settlement of territorial disputes on the basis or the provisions of the UN

[39]The European Union and the Arctic Region. COM (2008) 763 final, Brussels, November 20, 2008, URL: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do-?uri=COM:2008:0763:FIN:PL:PDF. The general conclusion of the communication is that the proposals contained in it "aim to provide the basis for a more detailed reflection" and "the present Communication should also lead to a structured and coordinated approach to Arctic matters, as the first layer of an Arctic policy for the European Union."

[40]The basic change in the approach of the EU towards the High North, and the Arctic in particular, in the opinion of Commissioner Vladimír Špidla (presented at the European parliament in October 2008), should be a proposition that "that the European Union plays a more dynamic and coordinated role in the Arctic" as opposed to the previous one, realized within the framework of Northern Dimension. See Arctic governance in a global world debate, the minutes of the PE meeting. 2985th FOREIGN AFFAIRS Council meeting, Brussels, October 08, 2008, PV 08/10/2008—25, URL: http://www.europarl.europa.eu/sides/getDoc.do?type=PV&reference=20081008&secondRef=ITEM-25&language=PL&ring=O-2008-0084, point 25.

Convention on the Law of the Sea; cooperation and the EU application for observer status in the Arctic Council (Communication 2008).

At the 2985th Foreign Affairs Council meeting of the European Union, the ministers discussed a future EU Arctic policy. As a result of the talks, it was decided that the EU Arctic policy should be based on:

- Effective implementation by the international community of adequate measures to mitigate climate change required to preserve the unique characteristics of the Arctic region;
- Reinforced multilateral governance through strengthening and consistent implementation of relevant international, regional and bilateral agreements, frameworks and arrangements;
- The United Nations Convention on the Law of the Sea—UNCLOS, and other relevant international instruments;
- Formulating and implementing EU actions and policies that impact the Arctic with respect for its unique characteristics, in particular the sensitiveness of ecosystems and their biodiversity as well as the needs and rights of Arctic residents, including the indigenous peoples;
- Maintaining the Arctic as an area of peace and stability, and
- Highlighting the need for responsible, sustainable and cautious action in view of new possibilities for transport, natural resource extraction and other entrepreneurial activities linked to melting sea ice and other climate change effects (Council Conclusions 2009).

The main foundation was followed by 23 points defining the proposed actions EU should undertake to formulate its Arctic policy. The main ones are as follows:

- The issues of climate change should be given increased attention by the United Nations Framework Convention on Climate Change—UNFCCC. The Council also supports action by appropriate international bodies, such as the Arctic Council, World Meteorological Organization—WMO, and the United Nations Environment Programme—UNEP, to enhance observation, monitoring and research, as well as to reduce the effects of emissions of greenhouse gases;
- EU policies on sustainable use of natural resources should be formulated in close dialogue with Arctic states and local communities;
- Harvesting of Arctic marine living resources should be managed on the basis of scientific advice as part of an ecosystem perspective;
- The Council supports the applications by Italy and the European Union to become permanent observers in the Arctic Council;
- EU should actively seek consensus approaches to relevant Arctic issues through cooperation also with Arctic states and/or territories outside the EU;
- The concept of sustainable development must include indigenous peoples, on the basis of their traditional means of livelihood (Council Conclusions 2009).

The Council also approved three fundamental objectives of the EU Arctic policy, earlier accepted by the European Commission. Although the form of the document

—a communication—is not a legally binding act on EU bodies, in practice it clearly defines the directions and modes of action for the future Arctic policy. What draws attention is the mention of the EU responsibilities to realize the policy in a manner which would best secure the Community's interests. It was deemed necessary to act through implementation of relevant agreements, frameworks and arrangements, and their further development.[41]

"The European Parliament resolution of 20 January 2011 on a sustainable EU policy for the High North" (www.europarl.europa.eu) is the first document issued by the European Union in which the term "High North" appears. The Parliament emphasizes that in spite of the fact that three EU Member States—Denmark, Finland and Sweden—have no coastline on the Arctic Ocean, they still hold Arctic territories and that is why, among others, the Community is interested in the developments of a political and environmental situation in the High North. It was also noted that the future Iceland's joining the EU will make the Community border with the Ocean. Therefore, the European Parliament recognizes the need for establishing a coherent and comprehensive EU policy towards the High North, which guidelines are as follows:

In transport the policy:

- Underlines the major importance of opening of new transport lanes (and the Northern Sea Route in particular) for the EU Member States' economies which requires actions in order to ensure their safety and security through the development of a mandatory international code for safety of ships being prepared by the International Maritime Organization (IMO), harmonization of national legislations and securing freedom of navigation on international waters;
- Stresses the importance of developing transport corridors in the Barents region, land and aviation connections to facilitate the growing need for international trade, mining and other economic development, which can be done through the Northern Dimension Partnership on Transport and Logistics—NDPTL (EP Resolution 2011).

In sustainable use and management of natural resources:

- Recognizing the growing demand for resources, the European Parliament recommends to ensure the highest possible safety, social and environmental standards in exploration and exploitation of the natural resources, and on the territories of the Member States compliance with directives of the Environmental Impact Assessment—EIA which will be the key in the management of concrete extractive projects and programs;
- Calls on the States in the region to resolve any current or future conflicts over access to natural resources in the Arctic in the way of constructive dialogue, possibly within the Arctic Council, which constitutes a good forum for such discussions; underlines the role of the UN Commission on the Limits of the

[41] Airoldi (2010, p. 23).

Continental Shelf—CLCS in finding solutions for conflicts between Arctic States over the delimitation of their exclusive economic zones;
- Stresses the responsibility of the States to ensure that extraction companies have the necessary safety technology and expertise in place to operate in the Arctic region;
- Calls attention to the fact that before any new commercial fisheries are opened in the Arctic region, scientific research must be conducted to determine levels of fishing to conserve the targeted fish stocks and other marine living resources in order not to allow for any adverse implications for other species or to serious damage to the marine environment;
- Is of the opinion that the creation and enforcement of marine protected areas of sufficient size and diversity are important tools in the conservation of the marine environment (EP Resolution 2011).

In climate change and protection of the environment from pollution:

- The European Parliament acknowledges that the EU, like other developed areas of the world, contributes substantially to climate change and therefore bears special responsibility and must play a leading role in combating climate change; the changes will have significant impact on coastal areas in Europe and the whole world, as well as on the sectors of European economy dependent on the climate: agriculture, fishing, renewable energy, reindeer husbandry, hunting, tourism, and transport;
- Acknowledges that the best protection for the Arctic is a long-term and ambitious global climate agreement although the rapid warming of the Arctic makes it necessary to develop short-term measures focused on eliminating the consequences;
- Calls for increased cooperation with the UNFCCC and the Sustaining Arctic Observing Networks (SAON) in order to ensure political and environmental security for this region vulnerable to climate changes, together with efforts to realize the Svalbard Integrated Observation System (SIOS) and the Arctic part of the European Multidisciplinary Seafloor Observatory (EMSO) as initiatives ensuring a unique European contribution to understanding climate and environment change in the Arctic region (EP Resolution 2011).

In the matter of sustainable socioeconomic development, the European Parliament states that climate change impacts indigenous people in the High North in an adverse way but it also brings opportunities for economic development; therefore, the European Parliament recognizes the rights of the indigenous peoples to sustainable development together with the right to preserve their identity and traditional way of life in accordance with universal principles of protection of fundamental human rights. It calls for greater involvement of indigenous people in policy-making of the region.

Problems of Arctic governance were defined by the European Parliament in the following way:

- The existing framework of international law, bilateral and multilateral agreements, the national regulations or legislation of the States form a solid foundation for Arctic governance but at the same time the challenges of climate change and increasing economic development call for the existing rules to be further developed, strengthened and implemented by all parties concerned;
- Although States play a key role in governance in the Arctic, other players—such as international organizations, indigenous people and local authorities—also have important roles;
- The European Parliament recognizes the Arctic Council as the most important regional organization in the Arctic region and appreciates the key role of the Northern Dimension as a focal point for regional cooperation in Northern Europe;
- Support for permanent observer status for the EU in the Arctic Council was reiterated (EP Resolution 2011).

The resolution is a comprehensive document expressing a desire of the European Parliament to play an important role in shaping the EU policy towards the High North. Although it is not legally binding for other bodies of the Community, its complexity together with the scope covering nearly all aspects of the EU's presence in the Arctic make it an important guideline for European policy makers. The resolution one more time reiterats that the regional bodies play a primary role in shaping legal frameworks in the region, towards which the Union should play only an auxiliary role. In the document great emphasis was put on preventing adverse effects of climate change and on strategies of securing the interests of Member States and the EU in the region particularly as regards exploitation of natural resources and transport infrastructure development on sea, land, and in the air.

The resolution on the High North is an example of European initiatives in which the main theme is great concern for the rights and interests of indigenous peoples of the Arctic. Its overarching objective is recognizing by the European Parliament the right of the indigenous peoples (following the United Nations Declaration on the Rights of Indigenous Peoples) and utilizing the European Instrument for Democracy and Human Rights to the benefit of the Arctic indigenous peoples.[42]

The latest document of the European Union concerning the Arctic is a communication prepared jointly by the High Representative of the Union for Foreign Affairs and Security Policy and the European Commission called "Developing a European Union Policy towards the Arctic Region: progress since 2008 and next steps" (Joint Communication 2012, pp. 6–14), addressed to the European Parliament and the Council. In essence, it reaffirms the policy of the EU towards the region and basically holds no surprises in the plans of its continuation. The charted course may be summarized in three key directions:

[42]Establishing a representation of the indigenous people of the Arctic in Brussels and creating a Working Group on Indigenous Peoples within the Northern Dimension are just a beginning of the necessary changes called for by the European Union.

- **Knowledge**—through supporting research and channeling knowledge the European Union can better address the challenges of environmental and climate changes in the Arctic and undertake actions in the region allowing for realization of its objectives;
- **Responsibility**—the European Union is obliged to act with responsibility to contribute to ensuring that the economic development in the Arctic is based on sustainable use of resources and environmental expertise;
- **Engagement**—engagement should result from knowledge and responsibility. Therefore, the EU will attempt to intensify its constructive engagement and dialogue with the Arctic States, indigenous peoples and other partners to contribute to protecting the environment and the people of the region.

The document contains also a summary of the EU's achievements in the Arctic until the time of issue. According to it, the major ones could be listed as follows:

- EU is on track to meet its Kyoto Protocol (1997) climate change commitments, and has incorporated its 20 % greenhouse gas reduction commitment into law;
- Reaching an agreement between the European Environment Agency and its Russian partners on a number of initiatives, among them on joint environmental monitoring, particularly in the Arctic, including the creation of a system to collect and share pollution data from water and air, long range transport of pollutants and improved management of waste and hazardous chemicals;
- An agreement with the Russian Federation on emergency prevention and response in the Barents Region negotiated and signed in 2008;
- Entering into a regular dialogue with the indigenous communities of the Arctic Region through organizing workshops and joint conferences, and through various assistance programs financed with nearly 2 billion euro;
- Financial support for research focused on sustainable development and natural environment changes (worth 200 million euro);
- Accepting the Communication "The EU Energy Policy: Engaging with Partners beyond Our Borders" in which there was expressed a comprehensive strategy for the EU's external relations in energy through improving transparency among EU Member States on their energy agreements with third countries, and strengthening coordination and developing comprehensive energy partnerships with key partner countries;
- Development of Trans-European Transport Networks, which also cover Europe's High North;
- Intensification of the EU's engagement in the Arctic Council and the Barents Euro-Arctic Council. The cooperation is also being developed in bilateral relations with the countries of the region (Joint Communication 2012, pp. 14–20).

The analyzed communication is so far the latest significant document describing the past and current policy of the European Union towards the High North. It has gone through a long evolution, from the initial focus on activities within the frame of the Northern Dimension to independent policy making with own directions and priorities. The communication clearly shows the desire of further and deeper

engagement of the EU in the Arctic, which allows for a supposition that soon the action of the Community in the High North should gain additional momentum in several sectors: mitigating climate changes, environment protection, natural resources policy, and cooperation with regional organizations and the indigenous peoples of the region. The fact that the European Union is far from being indifferent about the Arctic and that its actions are being continued in a much dynamic way is illustrated, for example, by the latest public hearing in Rovaniemi on January 31, 2013 where the European Economic and Social Committee—EESC and the Arctic Centre from the University of Lapland discussed the EU's Arctic policy. Participants included representatives of civil society, academia, local authorities and media as well as parliamentarians and diplomats. The discussion focused on the EU's interests and priorities in the Arctic, a region which is attracting ever-greater interest from global players in a number of policy areas such as energy, transport and the environment. During the meeting, entitled "EU Arctic Policy to address globally emerging interests in the region—a view of civil society", the representatives of the Committee[43] emphasized that the EU should formalize its Arctic policy as soon as possible, to ensure its involvement as a credible and constructive partner. This policy should be consistent with the strategy of each Arctic state, so that Arctic governance can be developed and implemented on the basis of effective cooperation with countries and key partners.

7.4 NATO and the Issues of the High North

The example of the European Union, or earlier of the Nordic Council, shows that although these organizations had not been called to life to solve problems of the European part of the Arctic, due to the engagement of their members in the region and all the apparent climate change in recent years, they have decided to develop their own policy of actions in the High North.

The Union's goals can be defined as general development of the Arctic but with special care extended to the preservation of the natural environment, protection of the indigenous people against the adverse effects of climate change and overexploitation of the natural resources, and strengthening of international organizations through active participation in the fora of regional cooperation. The last listed point may prove particularly difficult mainly due to the fact that so far the Union has not been successful in obtaining the status of a permanent observer at the Arctic Council. Paradoxically, the main reason for the situation is the opposition of the representatives of the indigenous peoples who are afraid of marginalization of their

[43]The EESC was represented by Paul Lidehäll, President of the study group on EU Arctic Policy, Sandy Boyle, President of the Section for External Relations and Filip Hamro-Drotz, rapporteur for the opinion, and other members of the study group. See EESC Opinion EU Arctic Policy to address globally emerging interests in the region—a view of civil society, http://www.eesc.europa.eu/?i=portal.en.press-releases.25968. Retrieved February 17, 2013.

role.[44] In spite of the glaring lack of success in this matter, the Union's policy has been comprehensive and continues to develop, which can be attributed to, among others, the new set of circumstances brought about by climate changes.

However, a much more complex issue is the NATO presence and its approach to the problems of the High North. Since the end of the Cold War, the High North had been a peripheral and peaceful area which, naturally, diminished the interest of the Alliance in the region. To a large degree, the situation has been altered by the change in the relations with the "East" from the confrontational to a more cooperative one, as well as by the emergence of new important operational engagement areas.

For a number of years now, the situation in the region has been changing quite profoundly. The consequences of climate change together with the intensified interest in the new economic opportunities of the North—exploitation of the natural resources and maritime transport in particular, have decisively strengthened the strategic position and importance of the region on a global scale. In spite of much more peaceful developments in the High North, in contrast to the former bipolar political situation, their evolution and the future, predictable scenarios naturally evoke a clear and justifiable interest of NATO. No wonder then that although the presence of the Alliance used to be very limited and was not directed against any of the countries of the region, now NATO has started appreciating the role it may play in the transatlantic security system.

Therefore, the **necessity of a greater engagement of the Alliance is growing as a result of emerging new realities and challenges**. It is also supported by the fact that the increased interest pertains to the geographical area within the scope specified by the North Atlantic Treaty, and many member countries are subject to the transformations, opportunities and challenges unfolding in this part of the world.[45]

As writes M. Jarocki, "The main reason for the interest shown by the Alliance in the changing situation in the Arctic is the desire to keep the region militarily neutral. Multiple territorial disputes and the vast potential of natural resources and mineral wealth may make it an arena of growing and much dynamic geopolitical rivalry. In view of the security of the Allied territory and its members, NATO perceives the necessity of maintaining the peaceful character of the political process taking place in the High North" (Jarocki 2013). In this context, the principle of solidarity and collective defense of member States, resulting from Article 5 of the NATO Treaty of 1949, appears to be of particular importance, as well as the development and assessment of the situation from the point of view of the future allied relations.

[44]More on the subject in Sect. 7.2.

[45]It is worth-mentioning that out of the eight permanent members of the Arctic Council, five belong to NATO (Denmark, Iceland, Canada, Norway, and the US). The membership and the geopolitical transformations of the Arctic seem to be sufficient reasons for a growing interest of NATO.

An interesting voice in the matter was presented by G. Haarde[46] who as the first one clearly identified the need to complement the security cooperation between Iceland and NATO with the European dimension, as realized by ESDP. He openly stated that not only Iceland and Norway regard their policies towards the High North as a priority but also other European countries have their interest in the region (and the other Nordic states in particular), which should find its reflection in the respective policies of both the European Union and NATO. Iceland expresses its appreciation for the NATO interest in the region, but at the same time expects the European Union to do the same. This concerns, in particular, the relations with Russia which in the aspect of soft security seem to be acceptable, but in terms of hard security are gradually becoming a challenge given the increasingly apparent Russian aspirations to regain a dominant position in the region.

Hence, a strong case can be made that in view of the new developments and evolving situation, there is an urgent need for a deeper engagement of the Alliance, and for the formulation of a new NATO strategy reflecting a new *modus operandi* which better addresses the High North. Therefore, in recent years, defining a clear and comprehensive strategy regarding the region has become a fundamental challenge to undertake. And some progress has been clearly made as evidenced by the Report by Kofod (2012) of Denmark titled Arctic Economic Opportunities, Environmental Obligations and Security Stakes. A significant contribution to advance the matter was provided by the document titled *Security in the High North: NATO's Role* (Zakrzewska 2013), drafted under the leadership of the Polish Parliamentarian Jadwiga Zakrzewska (chairing the Polish delegation to the Parliamentary Assembly). It is the first long-awaited text which attempts to clarify the Alliance interests in the Arctic and proposes the forms of their realization. The document was accepted at the session of the NATO Parliamentary Assembly in Luxemburg on May 17–20, 2013.

The level of necessary operational activity in the High North still remains an open question. The matter is well-explained by Jarocki (2013) who states: "This will require an exceptionally skillful political maneuvering. The increase in operational engagement by the Alliance will undoubtedly meet with objections, protests or at least a cold reception not only from Russia or China, but also some of the member states. Overcoming such challenges (or not) may finally shape the character of NATO engagement in the High North and at the same time define the real policy of this organization towards the region".

[46]G. Haarde was head of the Icelandic government from 2006 to the beginning of 2009. He was indicted for misconduct in office and negligence in undertaking the necessary steps combatting the financial collapse, which was punishable by two years of imprisonment. In 2010, the Parliament voted Haarde to stand trial before a special tribunal established in 1905 which had never been used before. 61-year-old G. Haarde is the only world leader to face penal charges in connection with a global financial crisis. The special tribunal found him guilty of not holding cabinet meetings on important state matters. The other three charges were dismissed.

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Chapter 8
The High North: Potential Conflict or an Opportunity?

Abstract The end of the Cold War brought a change in the perception of the Northern Areas and the Arctic is undergoing a significant transformation caused mostly by the climate change and globalization. An additional and very significant consequence of the changes is the increased interest in the Arctic by global players. It could be stated that the growing interest is generated by new economic opportunities related to commercial maritime transport, development of oil and gas deposits, mining, fisheries, and tourism. The natural results are closer economic and geopolitical relations between the Arctic and the rest of the world. Many observers perceive this development as a source of growing conflict because of competition related to control over the natural resources of the region. Others are very concerned about the consequences of the increasing integration of the Arctic with the global system of advanced industrialized society whose current lifestyle cannot possibly be considered sustainable. It seems also quite clear that the Arctic cannot follow its own original way of development which would be independent from the global power system. The Arctic is no longer an isolated or a distant region. It is a member of the global community, basically susceptible to global changes, and an area frequently in the very center of the world's attention. Increased global interest is a potential source of conflicts between the need for discoveries and exploitation, and the requirements of protection. All these parallel activities demand very efficient management and all these challenges must be met.

Keywords Region of change · Environmental protection · Uniqueness of Arctic · Independence of Arctic · Comprehensive approach

8.1 Natural Environment and Natural Resources Exploitation

Of extreme importance for the Arctic are both the protection and preservation of its unique features, and the economic non-living and living resources. An objective formulated in this way is in accordance with the principle of sustainable

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_8

development where environmental protection is an integral part of economic and social development processes. Subpolar and polar regions constitute ecosystems which are unique on a global scale and at the same time extremely fragile.

A disruption of the natural balance, not to mention its destruction, could bring dire consequences to the whole planet. Arctic climate is a key element of the global climate system[1] without which the sustainable use of natural resources does not appear to be possible. Progressing climate changes, however, transform the environment and all its elements. This includes ecosystems, business and economic activities, the living conditions and the traditional lifestyles of indigenous peoples, as well as non-native local population in the High North. For a number of years now, no meeting devoted to protection of the Arctic environment omits the issues of climate. That problem is reflected in all most important documents regulating environmental matters. Making it a priority, hopefully, will contribute to better, comprehensive, integrated and consistent actions to protect the environment.

The dynamics of development in the High North is of paramount importance for the Russian Federation as well as for Norway and other Nordic countries. All these countries, and Russia, Norway, and Denmark (Greenland) in particular, face similar logistical challenges among which the issues of energy resources are a priority. Those problems have very special connections with matters of environment protection and climate change. The whole issue is very difficult because of scarcity of comprehensive analyses and at times the lack of published works (in some countries of the region, even if they are published, then only in the official language of the state, for example in Iceland and Finland). A wonderful exception to the rule is Sweden where very interesting research is conducted by Swedish Defence Research Agency (although this body is mainly focused on analyses of energy relations with the Russian Federation). The international project called the International Polar Year[2] is also engaged in protecting the natural resources of the High North, and its goal, among others, is to analyze the impacts of oil and gas exploration and development on people's lives in the Arctic. The International Polar Year project has received funding of NOK 6 million from the Research Council of Norway to research human security in the High North. The project has been implemented with the assistance of an expert group of researchers from seven different countries. Also the Norwegian Polar Institute[3] was very much engaged in the program. The High North is an area of interest to the ecological foundation called the High North Alliance, founded in 1991 and advocating the protection of marine mammals. The alliance is organized by a governing committee of six members: three from Norway, and one each from the Faroe Islands, Greenland and Iceland.[4] The alliance is funded by membership fees and grants from organizations such as the North Atlantic Marine

[1] More on the subject in Chap. 3.

[2] The guidelines for the International Polar Year for the years 2007–2008 can be found at: www.diplomatie.gouv.fr/fr/IMG/pdf/GarcinE_F.pdf.

[3] http://www.innovations-report.de/html/berichte/umwelt_naturschutz/bericht-84809.html.

[4] www.highnorth.no/Library/Myths/Cont-win.htm—4k.

Mammal Commission[5] and the Regional Development Committee for Northern Norway.[6] The main objectives of the Alliance are active environment protection activities in the High North. In the matter of the conservation of whales, the Alliance is supported, among others, by the International Whaling Commission.[7]

As for the monitoring of the Arctic environment a special role is played by the Arctic Monitoring and Assessment Programme (AMAP)[8] established in 1991 and based in Oslo. AMAP is one of the 4 organizations that make up the Arctic Environmental Protection Strategy (AEPS)[9] on the basis of the agreement signed in Rovaniemi during the First Arctic Ministerial Conference[10] which was attended by the Ministers of the Environment of the eight Arctic countries.[11] Since June 1997, it is the Arctic Council which has been responsible for the continuity of the works undertaken within the context of the AEPS, including those of AMAP.[12] AMAP is one of the six working groups of the Arctic Council. The main objective of the program is to provide governments of the eight Arctic countries with sound and science-based data on the region, scientific advice on actions to be taken to combat or reduce the pollution of air, soil and the Arctic Ocean. They are indispensable to support the intergovernmental efforts in finding ways to prevent Arctic pollution, including the protection of humans, animals and plants, as part of its ecosystems. AMAP basically covers the land and marine regions located north of the 66th parallel (Polar Circle) as well as those located north of the 62nd parallel in Asia and north of the 60th parallel in North America. The south of the polar circle includes, among others, the marine regions located north of the Aleutian Islands in Alaska,

[5]Detailed information on NAMMC can be found on the official website of the organization: http://www.nammco.no/Nammco/Mainpage/.

[6]Data on the organization can be found at: http://www.regjeringen.no/en/sub/Europaportalen/EEA-Grants/regional-development-and-cross-border-co.html?id=446866.

[7]Data on the organization can be found at: http://iwc.int/.

[8]More on the subject at: http://www.amap.no/about.

[9]The three other programs making up the AEPS are: "Conservation of Arctic Flora and Fauna" (CAFF) dealing with Arctic wildlife and plants, "Emergency Prevention, Preparedness and Response" (EPPR), the objective of which is to provide a framework for future cooperation to deal with environmental emergencies, and "Protection of the Arctic Marine Environment" (PAME), which is in charge of taking preventive or restoration measures in relation to Arctic marine pollution.

[10]Afterwards, other ministerial conferences were held: in 1993 in Nuuk, Greenland, in 1996 in Inuvik, Canada and in 2002 in Inari, Finland. These meetings gave birth to a fifth organization, "Sustainable Development and Utilization" (SDU), the chief mandate of which is to propose strategies to governments to help them achieve their sustainable development objectives in the Arctic.

[11]Canada, Denmark, Finland, Iceland, Norway, Sweden, the USSR, and the United States.

[12]AMAP is mandated:—To monitor and assess the status of the Arctic region with respect to pollution and climate change issues;—To document levels and trends, pathways and processes, and effects on ecosystems and humans, and propose actions to reduce associated threats for consideration by governments;—To produce sound science-based, policy-relevant assessments and public outreach products to inform policy and decision-making processes.

Hudson Bay in Canada and certain parts of the North Atlantic including the Labrador Sea.

For years it has been known that sea ice is an important component of the Arctic ecosystem. The lives of several species, including seals and polar bears, revolve around it. The ice also has an important cooling effect on the climate, so its melting speeds up global warming and destabilizes the climate, not just in the Arctic, but over large parts of the northern hemisphere. Significant reductions in emissions of long-lived greenhouse gases such as CO_2 are the key to slowing if not putting a stop to global warming and the melting of the Arctic ice than at least mitigating the phenomena. "However, because these gases have such a long life in the atmosphere, no matter how much we cut emissions of them today, the slow pace at which the climate recuperates means that it will take about a century before the full impact of any reduction is felt."[13] Ice cover in the Arctic Ocean in the summer has already been reduced by 30 % since the late 1970s. In areas where previous scientific surveys found 4 m of multi-year ice, it has now disappeared completely or is down to 1–2 m. Less ice and snow as a result of rising temperatures lead to more open water and patches of bare ground, both of which absorb far more solar heat than ice and snow. This reinforces the warming effect, which in turn causes more ice to melt. It is a vicious circle and one of the main reasons why the temperature in the Arctic is rising twice as fast as the global average. Carbon landing on snow and ice in the Arctic is thought to have an additional effect that is three to four times greater than the warming effect of carbon in the atmosphere.

Climate change and the progressive transformation of the natural environment of the High North pose a great challenge and the Arctic Eight (at the summit in Nuuk) decided that problems of the region should be solved in the Arctic and not outside of it. Of course, cooperation with others is not excluded but they must be observers only. It seems that this way the Arctic became independent from other regions and institutions representing them. In addition, permanent members of the Arctic Council have clearly indicated to the international community that as regards the future of the region, they wish to continue cooperating on the conditions set by them, and that they do not wish to share responsibility with other states.

The constant drive of people to test the limits of human activities and push northwards has also had a negative impact on the environment, once so pristine and untouched for the major part of our history on the planet.

Technological advancements bring about artificial obstacles preventing free movement of animals; for instance, drilling rigs along the Point Barrow are placed

[13]"Arctic in need of first aid. Emissions of carbon and methane must be cut now," April 12, 2012, article prepared by the ministers for environment and climate: Minister for the Environment, Ida Auken (Denmark), Minister for Climate, Energy and Building, Martin Lidegaard (Denmark), Minister of the Environment, Ville Niinistö (Finland), Minister of the Interior, Kári Páll Hojgaard (The Faroe Islands), Minister for the Environment, Svandís Svavarsdóttir (Iceland), Minister of the Environment, Bård Vegar Solhjell (Norway), Minister for the Environment, Lena Ek (Sweden), Minister of Social Affairs and Environment, Carina Aaltonen (Åland). Quoted after: www.norden.org, (retrieved May 25, 2012).

in the way of whales migrating in spring to reach the Beaufort Sea. Noise can seriously disrupt the animals' sense of direction. One of the most devastating human-caused environmental disasters was the spill of 38,000 tons of crude oil polluting the Prince William Sound in Alaska—as a result, tens of thousands of marine mammals perished, together with countless birds. Another problem, whose source has nothing to do directly with the Arctic, is the contamination of marine waters and air. The first one is brought about by the presence of chromium and mercury in industrial waste, while the second is caused by various chemical contaminants including pesticides and herbicides. The intake of those at each subsequent stage of the food chain in the High North[14] poses a serious health risk to animals and humans (Pressfakta 2012). Strangely enough, other dangers come together with human settlements appearing constantly further up north. They are the ones producing practically non-biodegradable waste in this climate (this is caused by low temperature and the lack of bacteria to break down organic matter), and heaps of these become a more common and sad feature of the once uncontaminated landscape. Climate changes through rapid melting of ice-caps, glaciers and thawing of permafrost create significant safety concerns for those settlements. This is true as regards coastal settlements (coastal erosion in the short-term, sea-level rise in the long-term) and the cities of the Russian High North once built on the thawing permafrost which proves to be not so permanent after all.

The very land management in the High North and select economic activities in the Arctic threaten its vulnerable natural environment. Exploration and exploitation of hydrocarbons and other natural minerals, transport, and tourism are the main activities of such a huge potential that they significantly alter the Arctic environment. It is such an enormous challenge that it calls for planning and devising of sustainable development plan of economic activities such as sustainable tourism which, as a new form of business, provides an opportunity and may benefit the local communities and indigenous peoples.

All activities threatening the ecological balance and the wildlife, which the ecologists make a subject of international debates (Walat 2006, pp. 52–53), may cause uncertainty about the state of the environment and potentially irreversible consequences, so there is a need for the application of the precautionary principle in order to protect people and the environment from the threats. It is real, the more so as stated by Kuupik Kleist, head of Greenland's Home Rule government, "Arctic is not just about polar bears and ice. What is often missing in the debates is the human situation in the Arctic and the conditions under which we live" (Spongenberg 2011). It is mostly about the means of appropriate preventive measures, providing guidelines for the evaluation of new technologies, pushing for innovative economic activities and new public policies especially in the situations that have all the makings of significant sources of environmental hazards.

[14]For example, the nuclear reactor explosion at the Chernobyl power station contaminated the grasses and mosses in the North, as a result of which in Sweden and Lapland 40,000 reindeer had to be disposed of as their meat was unsuitable for human consumption.

Special meaning is also attributed to the assessment of self-sufficiency of indigenous peoples, together with limitations and opportunities, which in essence intends to examine the vulnerability of Arctic communities. Such research allows for the assessment of environmental as well as social changes. This is very true especially when the prospects, knowledge and concerns of the indigenous peoples and other local inhabitants in the Arctic are of real importance.[15] Scientific research on the impact of climate change must be conducted with the participations of the stakeholders and through a dialogue between the inhabitants and industry as well as governmental representatives. If some win and some lose on climate changes and altering economic opportunities, the more should the interested parties be involved in order to represent various approaches and assess to what degree the possibilities of sustainability and self-reliance are violated or limited.[16]

A particular case of extreme care is provided by the example of the European Environment Agency (EEA 2001) report (Environmental assessment report No 8) which has examined the history of many earlier environmental problems, paying special attention to those issues. The report emphasizes the missed chances of the "lessons" which could have been learned by studying earlier problems of the natural environment. There had been signs of the "early warning" kind, but they were simply disregarded. On the basis of such warning signals from the past, the report draws some guidelines for the strategy of care and concern facilitating sustainable development and self-sufficiency. The final words of the ACIA report may serve as a reminder to approach the matter with extreme caution. One more time, they do it in the name and on behalf of sustainable development in the Arctic and in order to increase self-sufficiency: "While more studies and a better understanding of the expected changes are important, action must begin to be taken to address current and anticipated changes before the scale of changes and impacts further reduces the options available for prevention, mitigation and adaptation" (ACIA 2005, p. 1020).

The situation is very serious. As pointed out by all the reports and research, the Arctic needs immediate help, which is supported in, among others, by the Nordic Environmental Action Plan 2013–2018.[17] One should remember, however, that climate change problems cannot possibly be solved without participation of the industry community[18] which is capable of stimulating the development of environmentally friendly technologies.

The afore-mentioned remark seems to exemplify one of the characteristic features of the Nordic states, i.e. a social awareness that innovative technologies and solutions regarding energy have a significant role to play in overcoming the so-far existing negative relations between development and environment degradation.

[15]See ACIA (2005).

[16]More on the subject in: Prevent the plundering of Arctic resources. www.norden.org, May 16, 2012.

[17]See *Nordic Environmental Action Plan 2013–2018*, Nordic Council of Ministers, Copenhagen 2012.

[18]See Nordisk klimatinsats inför FN:s klimatkonferens, www.norden.org; February 28, 2008.

The Nordic states represent different approaches towards nuclear energy. Finland and Sweden have nuclear power while the three other countries have chosen not to count on that form of energy. In spite of that, they all agreed to ensure a higher level of safety in the existing plants.

Nuclear energy still is a hot topic especially after the accident at the Fukushima Nuclear Power Plant in Japan hence, among others, came the lively discussions at the Nordic-Russian "round table" in Murmansk (April 28–29, 2011) particularly on matters of energy and energy efficiency. The Nordic Council's Presidium was represented by Marion Pedersen from Denmark, the Vice-President of the Nordic Council. At the meeting, the Norwegian Per-Kristian Foss said that in Norway, as a result of the experience from the Chernobyl accident, there was general skepticism towards nuclear power. But, since it was not realistic to close down the existing facilities, it was necessary to secure them and to clean up the nuclear fuel waste, also from the decommissioned nuclear-powered boats. Norway has provided financial support in this area[19] to help Russia clean up the consequences of radioactive contamination at Murmansk harbor (www.regjeringen.no).

The situation was made somewhat easier by the Nordic Environment Action Plan 2005–2008[20] which formed the framework for the Nordic countries' environmental cooperation both within the Nordic area and in relation to the neighboring areas, the Arctic, the EU and other international fora. The plan strongly emphasized the need for integrating the various sectors and for collaboration among the various working groups on environmental matters.

It was a natural consequence of the premise that environmental matters should not be examined in isolation but as part of a larger whole.[21] Four-year experience of this Plan provided guidelines for cooperation and brought in the results which reinforced the position of the Nordic region as an international leader and a frontrunner in environmental matters. It should be emphasized one more time that this is a region in which concern for nature, nature and landscape conservation, the preservation of biological diversity, the cultural diversity and environment are everyday issues.

In its concluding analysis, the Environment Action Plan presents environmental actions as crowning the strategy of sustainable development in the Nordic Region and the Adjacent Areas in the years 2005–2008. The Arctic Region constitutes a major part of the Nordic states' priorities, and those of the Adjacent Areas. That is exactly what the program of sustainable development concerns, known as the Nordic Council of Ministers Arctic Programme of Cooperation[22] which puts special emphasis on environment protection.

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[19]See Lively roundtable discussions in Murmansk. Retrieved May 02, 2011 from www.norden.org.

[20]The Nordic Council of ministers assigned 40 million DKK (i.e. 5 % of own budget) for the cooperation on environmental matters; more on the subject in: Facts on Nordic Co-operation.

[21]See Sverige ordförande i Nordiska ministerrådet 2013. Retrieved January 11, 2014 from http://www.regeringen.se/sb/d/16195.

[22]See Arktiska Samarbetsprogrammet, www.norden.org.

In view of the Nordic Environment Action Plan 2005–2008, the Arctic strategy focused on climate change and pollution prevention, and their significant impact on the environment and prosperity in the Arctic region. As said by J.G. Støre, Norwegian Minister of Foreign Affairs: "We are facing a historical challenge in the High North as the climatic changes force us to perceive the opportunities and problems which we did not even imagine a few years ago" (Aftenposten 2008).

The problem is well understood and became the priority of the Norwegian coalition government of J. Stoltenberg which assigned special importance to the High North (Nordområdene—the Northern Areas) and developed an action plan to guarantee keeping balance between the protection of natural resources and their effective exploitation, so creating an ecosystem based management plan.[23] Presenting the plan of developing the northern areas to the Storting (*St. Meld. nr 8 Helhetlig forvaltning av det marine miljø i Barentshavet og havområdene utenfor Lofoten*),[24] the government had every reason to be satisfied. For the first time in Norway such a comprehensive document was drafted, which covered all possible aspects of the issue, i.e. the matters of ecology, natural resources, and transport problems. The importance of the document cannot be overestimated the more so as it was a result of a compromise reached after very difficult negotiations with coalition partners. As assessed by the Norwegian Ministry of Foreign Affairs, the essence of the plan can be described by two words: **co-existence** (of the ecological values and extractive activities) and **knowledge** (comprehensive knowledge of the region's specific nature, as well as of its needs and determinants, together with the awareness of the necessity of conducting further research). The issue of safe maritime transport should also be indicated as one of the factors determining the final shape of the Plan. In this context, special care should be devoted to limiting pollution and accidents, safe transport of fuels, and improving safety through reinforcing safety measures on the ships, should extraction intensify in the North.

Extraction of oil and gas needs a long-term strategy and undertaking proper measures to protect the environment. For example, the Norwegian Government has a dilemma: either increase extraction of oil and gas[25] or protect the environment. In an interview given in June 2008 (Barents Observer 2008), the Prime Minister of

[23]While designing a development plan for the High North, several factors had to be carefully analyzed: fisheries (maintaining the abundance of fish stock, combating illegal fishing and overfishing), industrial activity in these areas (geological conditions, extraction in an eco-friendly manner, designing the most favorable conditions for exploitation), the natural environment and its protection, and the safety of maritime transport. In the course of work, additional research and analyses proved to be necessary. Due to the region special location (the northern provinces of the country, Nordland, Troms and Finnmark, and the neighboring sea areas), the Norwegian Government cooperated in designing the project with the Russian authorities which positively reacted to the idea of developing a bilateral dialogue on the Barents Sea; see Czarny (2009).

[24]The ecosystem-based management plan was developed by an international working group and presented to the Norwegian Parliament on March 31, 2006.

[25]The problem pertains to the waters of the Lofoten Archipelago holding large deposits of oil and gas; see http://www.barentsobserver.com/government-parties-want-protection-of-lofoten.4491922-16282.html.

Norway J. Stoltenberg declared that possible extraction of oil and gas from the Lofoten Archipelago[26] will be considered at a later date in view of the unique flora and fauna in that region.

Today, the issue has returned one more time. Although Norway is one of the world's wealthiest countries, unemployment keeps growing on the Lofoten Archipelago; the young leave it and go to the cities, and the archipelago has become depopulated. The only opportunity for development is seen in the hydrocarbon resources located there. It is all the more important as the oil output by Norway, the world's number seven exporter, fell to 1.5 million barrels per day in January 2013. This means that even a string of big finds, set to come online in the second half of the decade, might not halt the rate of decline. "The industry needs access to new areas on a regular basis to sustain activities," said Einar Gjelsvik, chief executive of Noreco, an oil producer. The waters of the Lofoten could hold 8 % of Norway's undiscovered oil and gas resources, the Norwegian Petroleum Directorate says, which means the recoverable reserves or around 1.27 billion barrels of oil equivalent. Specialists from the oil industry claim that the development of new technology will definitely reduce the risk. An opinion poll held in February 2013 to assess the reaction to the prime minister's decision to start drilling showed that 49 % of Nordland County, which includes Lofoten, opposed oil and gas production off the islands with 34 % in favor of exploitation of hydrocarbons in the Lofoten region. The opponents are supported by ecological movements and companies engaged in tourism (http://wyborcza.biz/biznes).

On April 21, 2013, Norway's ruling Labour Party[27] approved conducting environmental impact study of oil drilling in the waters around the Lofoten islands which may make way for the exploration of their oil and gas resources. Though approving the environmental study, the Labour Party announced that also another vote on exploration around the Lofoten islands would be taken in 2015, before actual drilling could begin.

The case of the Lofoten clearly exemplifies how important the problem is. For how can one possibly make a dramatic choice between the lofty protection of the unique environmentally regions and the prose of life and the pressure exerted by the industrial giants justifying their expansion drive by, among others, the necessity of providing more jobs? As evidenced by the practice, Norwegians are resourceful and will probably find a golden means also in this matter. After all, they did so signing an agreement on the delimitation line with Russia in the Barents Sea. It is beyond any doubt, however, that for the good of all, Norway and Russia should continue their cooperation in the basin and on the issues regarding it.

For Norway, just like for other Nordic countries, the biggest challenge now is not development but implementation of strategies allowing for striking a balance

[26]An archipelago on the Norwegian Sea, north-west from the Norwegian coastline, separated from the mainland by Vestfjorden.

[27]Until then, the Labour Party as one of the major three parties in Norway, due to environmental and landscape considerations, did not agree to any exploring or exploitation of the offshore resources around the Lofoten islands which are located north of the polar circle.

between environmental protection and sustainability, security of energy supplies and economic development, and growth of social welfare. Therefore, this group of countries supports the key processes at the EU, OECD, UNEP,[28] and international conventions on environmental protection. The Nordic policy of environment protection has already registered several positive results and can be called a historic success. One can only hope that the Nordic cooperation will provide inspiration for other countries and help support the development and implementation of international environmental agreements.

S. Modig put it so aptly when she said: "The requirement for total protection of the Arctic from the use of natural resources is not realistic, since it's so big an opportunity to leverage the resources of the area. But even more unrealistic is the notion of unrestricted exploitation of oil and gas that would strengthen the greenhouse effect and cause border disputes and oil accidents with devastating environmental disasters as a consequence. Therefore, we must take every means in use to ensure that these highly conflicting interests can be coordinated."[29]

8.2 Geopolitics of the High North and Its Consequences

Due to the impact of climate changes, one can say that a notion of a separate Arctic Region not only took on a full shape in the last years, but also currently enjoys a certain revival. Historically, it dates back to several different concepts from the time of great discoveries, through the militarization of the Cold War, all the way to a period of a near oblivion in the post-Cold War era. Today, the situation has taken a diametrical transformation. Climate changes together with the dynamics of rapidly modified assessments of the geopolitical situation in the world are the reasons for redefining the interests of several states vis-à-vis the High North.

Although the High North is one of the most remote and inaccessible parts of the world, the Arctic does not appear to be immune to the globalization processes. It is clearly evidenced by new challenges faced by the region's population and the manner in which the region is integrated with the geopolitics on a global scale. The emergence of big new consumer markets, mostly in China and India, points to the shift in the dynamics of economic potential and the resulting transformation in terms of security. The occurring changes which allow for utilizing new maritime routes and the decisions delimitating maritime borders in the North may have

[28]More on the subject at http://www.unep.org/.

[29]In the original: "*Kravet om total fredning av det arktiske området mot bruk av naturressursene er ikke realistisk, ettersom det er så store muligheter for å dra nytte av ressursene i området. Men enda mer urealistisk er tanken om uhindret utvinning av olje og gass som vil kunne styrke drivhuseffekten og forårsake grensekonflikter og oljeulykker med ødeleggende miljøkatastrofer som konsekvens. Derfor må vi ta alle midler i bruk så disse svært motstridende interessene kan samordnes*." Modig, S. *Bruk av naturressurser i arktiske strøk forutsetter miljøklassifisering*. Retrieved September 13, 2012 from www.norden.org.

tremendous implications, for example in the Strait of Hormuz, which in conjunction with the natural resources of the Arctic could have far-reaching consequences for the economies and societies of Asia and Africa. Although the posed hypothesis may appear somewhat futuristic, such a scenario is as possible as predicting a close relationship between melting of the ice in the Arctic and the processes of change in international business and political economy. All of the above is key and fundamental in understanding the dynamic changes leading to the shaping of a new world order in which the North already participates and might soon play a very significant role.

The High North in the political sense denotes eight states, called also the Arctic Eight, two autonomous areas and an archipelago under the auspices of an international agreement. These are six European countries: Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway (together with Svalbard), Russia, Sweden, and two non-European states: USA (Alaska) and Canada.

Osica (2010) distinguishes three basic groups among them and their distinct approaches:

- Russia and Canada are the "Arctic Warriors" treating "…their presence in the Arctic as one of the main elements of the identity of their foreign policies, and the one determining their role in the international policy";
- the Nordic states—the "anxious pragmatists" for whom "…the Arctic is an area which determines social and economic development as well as an ecological challenge, and of which Norway is at the forefront. Nordic states are favorably inclined towards involvement of the EU and NATO as organizations which strengthen their positions in relation to the bigger players, particularly Russia and the USA";
- the United States of America—the "late player" "…who has only recently begun the process of defining its interests towards the subregion" (all citations from Osica 2010, p. 20).

The Arctic ice is really melting: in summer, the ice sheet is 40 % smaller than at any time in more than 30 years of satellite observations. The landscape of the Arctic has been undergoing dramatic changes. When the polar region becomes completely ice-free in the summer months, and experts estimate that it may happen in some 20–30 years, serious international problems may arise. We are already dealing with their harbinger when we ask a question: Are the huge deposits of carbohydrates in the High North going to become a source of conflict? After all, we know that together with the decrease or even disappearance altogether of the ice cover, the exploitation of the precious resources will not only become possible but will also rapidly accelerate. "It also means tensions over Arctic real estate. What the Middle East was to the second half of the 20th century, the Arctic could be to the first half of the 21st," said the American *Christian Science Monitor*.[30]

[30]Quoted after Piaseczny (2010).

Today, we have really five so far unofficial competitors that are actually taking part in this race: Russia, Canada, USA, Norway, and Denmark.[31] Russia is already well-equipped for the exploration of the Arctic. On the one hand, it possesses research submarines of the "Mir" class and powerful icebreakers which at any given time may set off on a polar patrol,[32] but on the other, it does not have the technology or the sufficient capital[33] to start the extraction of the Arctic resources on a big scale.[34] Russia has a very long coastline in the High North and still makes demands to a great portion of the Arctic (1.2 million square kilometer, including the North Pole itself). To understand Russia's approach to the Arctic issue, one needs to have at a least a quick look at the history of its activities in the region. In 1926, the Council of People's Commissars of the Union of the Soviet Socialist Republics issued a decree[35] through which it assumed possession of the islands and the lands, both those already discovered and not yet described, which at the time of signing the decree had not been appropriated by any other country (*res nullus*) and were situated in the Arctic Ocean within a sector delimitated by two longitudes drawn from the continental coast of the USSR to the North Pole. It is important here that the declaration applied only to land territories and never mentioned the Arctic waters or the continental shelf (Kubiak 2012, p. 224). The decree formed the basis for the Russian claims in the Arctic and led to a diplomatic dispute with Norway on the delimitation of maritime boundaries in the Barents Sea. On the turn of 1980s, the eastern frontier of the Russian claims was contested and bred a conflict with the United States over the delimitation of maritime boundaries in the Chukchi Sea. The dispute lasted until July 1, 1990 when the two countries signed an agreement recognizing the "Western frontier" as delineated by the sale of Alaska treaty in 1867.[36]

With the advancement of new technologies for marine resources development and the somewhat lacking development of the legal framework on the sea, the Russian Federation needed to meet the challenge of securing its claim to the Arctic continental shelf. On December 20, 2001, Russia as the first state in the region submitted an Arctic claim to the UN Commission on the Limits of the Continental

[31]For a number of reasons, the Russian Federation appears to have the greatest appetite and the biggest assets.

[32]A construction of three more nuclear-powered icebreakers is planned. Moscow also intends to create a group of satellites to observe climate changes and explore the High North, searching for minerals.

[33]Only the cost of preparations for the exploitation was estimated at 500 billion dollars, while the real amount necessary for industrial extraction stands at 2 trillion dollars; after: Cheda, R. Zimna wojna o bogactwa Arktyki. Jak daleko posunie się Rosja? http://konflikty.wp.pl/kat,132916,title,Zimna-wojna-o-bogactwa-Arktyki-Jak-daleko-posunie-sie-Rosja,wid,15400614,wiadomosc.html. Retrieved March 20, 2013.

[34]Both Gazprom and Rosneft are fully aware of that, the more so as together with the thawing of permafrost, the Russian infrastructure beyond the polar circle becomes very vulnerable.

[35]The decision was inspired by the Canadian declaration of 1925 extending its maritime boundaries of the "Arctic pie" from its coast northward to the North Pole.

[36]It should be noted that the treaty has never been ratified; see also Kubiak (2012), pp. 226–227.

Shelf (CLCS) to extend its maritime boundary beyond the limits of 200 nautical miles of the continental shelf baseline.[37] The argument supporting Russia's demand was the 1800 km long underwater mountain ridge in the Arctic Ocean from the Siberian continental shelf to the North Pole (Młynarski 2011, pp. 280–281).

Currently, another Russia's claim is being considered. The country continues to try to find justification by all possible means. On March 2010, Dmitry Medvedev at the session of Russia's Security Council stated that other polar nations had already taken active steps to expand their scientific research as well as economic and even military presence in the Arctic. He also added that attempts had been made to limit Russia's access to the Arctic resources. He commented that it was absolutely inadmissible from the legal viewpoint and unfair given Russia's geographical location and history. Although the Russian leader never named a specific nation, immediately Catherine Loubier, a spokeswoman for Canadian Foreign Minister, said that Canada's sovereignty over lands, islands and waters of the Canadian Arctic is long-standing, well-established and based on historical title. She also announced that Canada has committed to building a High Arctic research station that will continue to map Canadian northern resources and waters.

Canada openly disapproves of the Arctic ambitions of Russia and the United States.[38] The authorities from Ottawa announced also the building of a new deep-sea port, patrol ships and a new icebreaker, the John G. Diefenbaker. Experts, however, are of the opinion that even if all these projects are realized, that might not be enough for Canada to become an Arctic power. It is conceivable that in the long run the Canadians will have to acknowledge the superiority of Russia and the United States, although the US, still underappreciating the phenomenon of the global warming, so far seems to be lagging behind in the race for the Arctic resources. "If there's a five-nation race in the Arctic," warns Coast Guard Admiral Gene Brooks, "we're fifth. Most Americans don't even realize that we are an Arctic nation."[39] One needs to keep in mind that the US is a superpower and should it choose to make serious claims, the High North might get not warmer but extremely hot.

As mentioned before, Denmark has claims as regards the High North by virtue of Greenland. In spite of several Danish research projects in the making, even if their results could possibly justify the claims of extending Danish sovereignty over additional polar territories, the Kingdom can certainly expect serious objections from Russia and Canada. On 25 November 2008, 75.5 % of the electorate of the world's largest island voted in favor of loosening their 300-year-old ties with Denmark, which may lead to eventual independence. The ambitions of Greenlanders connected with broader autonomy were to be kept in check by the agreement signed with Denmark in 2008, after three years of negotiations, which has provisions on sharing the expected revenues from the exploitation of Arctic

[37]It was not accepted then due to the lack of proper documentation.

[38]Canada and the United States have a dispute over the borderline in the Beaufort Sea.

[39]Statement by Rear Admiral Gene Brooks, commander of the U.S. Coast Guard. Quoted after: Piaseczny (2010).

resources. The agreement provides for the transfer of 10 million euro annually to Greenland (Truc 2008).

If we complement the above, possibly complicating it as well, by a statement that an ice-free Arctic is not only a source of various mineral riches but also a shipping route, it is no wonder then that there are so many comments and opinions that the conflicts over delimitation of the Arctic might lead to military confrontations or at least to a growing international tension in the region.[40] Professor Robert Huebert, of the University of Calgary and an adviser to the Canadian government, described it in the following way: "We are already in an Arctic arms race. The year 2010 in the Arctic is akin to 1935 in Europe."[41]

It is quite interesting that nearly every country of the region has its own plans for a military presence in the Arctic.[42] In March 2009, Russia announced placing a series of military bases in the region and deployment of 10,000 troops there. The Russian plan "Arktika 2020" assigns 44 billion dollars to several projects, from developing fuel and gas infrastructure to deploying troops in the Arctic. In 2009, Norway was the first to have established a military base in the circumpolar circle and until now has organized a few NATO military maneuvers[43] (among others, Cold Response) in the region. Denmark is planning for its military Arctic Command to be stationed in Nuuk, Greenland. Canada's "Northern Strategy" plans to spend 2.92 billion on specialized vehicles and 680 million dollars on a new icebreaker. The United States already has military bases in Alaska but so far there no special plans to create a dedicated command there.

In the last few years, the Norwegian Navy was strengthened with five most advanced frigates equipped with Aegis anti-missile defense system. Denmark and Canada have also increased their military spending.

Still, the true challenge for all the northern countries remains foremost protecting their own sovereignty and maintaining the status quo, and only then, if at all, enlarging the sphere of economic and political influence. "A sovereignty challenge has two aspects. On the one hand, it concerns the disappearance of natural physical barriers once protecting access to the territories of mainly Russia, Canada, and the USA. On the other, it is related to maintaining own jurisdiction over the territories which so far were beyond reach of other players and whose international legal status is contested" (Osica 2010, p. 12).

At the beginning of the 20th century, the countries bordering with the Arctic divided it among themselves and the delimitation was based on the so-called sector line boundary, with the North Pole as its reference point.[44] According to Russia and

[40]See Łuszczuk (2010).

[41]Quoted after Piaseczny, J. Spory o podział Arktyki. *Przegląd nr 14/2010*.

[42]A very interesting and much pertinent material on the subject can be found in Kubiak (2013).

[43]More on the subject of NATO and the Arctic in Sect. 7.4 and in Security in the High North: NATO's Role, NATO Parliamentary Assembly Political Committee*, 071PCTR 13 E*, 28 March 2013.

[44]See Tarnogórski (2009). The Polish Institute of International Affairs, Research and Analyses Department, Warszawa.

Canada, the sector principle traces longitudinal parallels from borders of countries adjacent to the Arctic Circle and to the North Pole, assigning the sectors so formed to the neighboring nations. Then the entire High North, including the Arctic, would be divided into five wedge-like sectors. Such a solution is rejected by the United States, and for obvious reasons, also Norway, Iceland, Sweden and Finland object to it.

Contrary to the Antarctic, there is no single comprehensive legal regime governing the Arctic, but it is still subject to general regulations for seas and oceans defined in the United Nations Convention on the Law of the Sea (UNCLOS) of 1982, which became binding on November 16, 1994. Alongside UNCLOS, a number of other international treaties and customary laws also constitute the Law of the Sea. Among the more important treaties in the Arctic context are the 1958 Continental Shelf Convention (in force since 1964)[45] and the 1994 Agreement relating to the implementation of Part XI of the UNCLOS[46] regulating the deep seabed mining activities. Pertinent are also the shipping-related treaties of the International Maritime Organization (IMO).[47]

The 1982 Convention establishes that coastal states have sovereign rights over natural resources in a 200-nautical mile zone.[48]

According to Article 76 of the United Nations Convention, however, the continental shelf can be extended to 350 nautical miles. When the continental shelf goes beyond the Exclusive Economic Zone (EEZ), nations may also claim limited sovereignty over seabed resources in that area, known as the Extended Continental Shelf (or ECS) which effectively can reach out to 350 nautical miles from the shoreline. Coastal states have to submit information, based on scientific and technical evidence, to the United Nation Commission on the Limits of the Continental Shelf (CLCS)[49] showing that the extended submarine area claimed is in fact a prolongation of its 200 n.m. continental shelf (www.un.org). The Commission makes recommendation to coastal states on matters related to the establishment of those outer limits. As writes Młynarski (2010), "The shelf borders established by a littoral country on the basis of these regulations are final and binding. The states submitting the claims to extend its national jurisdiction beyond the 200-mile

[45]The United Nations Convention on the Continental Shelf (the Convention) was agreed to in Geneva on the 29 April 1958. Journal of Law of 1964 no. 28, item 179, in force since July 27, 1964. Retrieved May 09, 2011 from http://prawo.legeo.pl/prawo/konwencja-o-szelfie-kontynentalnym-sporzadzona-w-genewie-dnia-29-kwietnia-1958-r/.

[46]The agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of December 10, 1982, drafted in New York on July 28, 1994; *Journal of Law of May 20, 2002*. Retrieved August 14, 2013 from http://www.lex.pl/du-akt/-/akt/dz-u-02-59-544.

[47]More on the subject in: Czarny, W. Wawruch, R. Międzynarodowa Organizacja Morska. Zadania, Struktura Organizacyjna i Metody Pracy. Retrieved July 15, 2013 from http://www.bhmw.mw.mil.pl/zasoby/ph/pliki/PH_4_Czarny.pdf.

[48]Among others, A. Pieńkowski writes about it in Zimna wojna o Arktykę. Retrieved July 10, 2013 from http://www.wprost.pl/ar/131321/Zimna-wojna-o-Arktyke/?pg=1.

[49]Established under the provisions of Annex II to UNCLOS.

boundary must do so within ten years of their having ratified UNCLOS. There is also a requirement that the claimant state must gather and present relevant science-based documentation" (Młynarski 2010, p. 381). So far, the Russian Federation (2001) and the Kingdom of Norway (2006) submitted their claims to CLCS.

So it is the state that has the sovereign rights and control over natural resources of its continental shelf adjacent to its territory within 350 nautical miles from the coastline or 100 nautical miles from the 2500-m isobath (lines indicating water depth), whichever is greater. The law pertains to the mineral wealth but not fishery or aquatic resources which are property of a given state within the boundaries of the exclusive economic zone (200 nautical miles wide). Farther on starts the area of international waters in which it is permissible to carry out fishing, conduct research, lay pipelines, and plant flags but it is forbidden to conduct exploration and exploitation of natural resources in, on or below the seabed without the permission granted by the International Seabed Authority (ISA). The problem is that the very center of the Arctic is actually international waters. U.S. did not ratify the UN Convention on the Law of the Sea, nor did many other countries. The claims to the continental shelf have already been submitted or will be submitted soon by all Arctic states.

When deliberating on the High North, if one considered the international status of the deep seabed, than the region would be subject to the common heritage of mankind principle[50] through the provisions of the Convention stating that in the zone of the Arctic Sea it is the freedom of navigation in the high seas which reigns.

As writes L. Jacobson, there are people who emphasize that the Arctic is not the backyard of any country or group of countries, so it is in the interest of mankind that all states can share the Arctic (Jakobson 2010, p. 13). According to this theory, it is necessary to protect the balance between the interests of states with shorelines in the Arctic Ocean and the shared interests of the international community, as the Arctic is not a "private property" but the inherited wealth of humankind (Wright 2011).

The political question is who does the Arctic belong to? In the running there are Russia, Canada, USA, Norway and Denmark. The so-called "Arctic Five" undoubtedly have rights to the Arctic. These countries all border with the Arctic and therefore all have some claim to areas of the seafloor under the ice.[51] Młynarski (2010) rightly stresses that "according to international law, the acquisition of

[50]According to one theory, no nation could achieve sovereignty over the Arctic (*res nullius*), and according to the other (*res communes*), every nation shares in undivided sovereignty over the area. On February 20, 2009, at the consultation meeting of legal advisors to the ministries of foreign affairs of Russia and Canada, both parties agreed that UN Convention on the Law of the Sea is the main legal instrument for the Arctic and there is no need to develop a new treaty especially for this region.

[51]See Barratt, R. The melting of the Arctic. http://www.experimentation-online.co.uk/article.php?id=1347, who rightly says that we must not forget about the indigenous peoples of the Arctic, about the Inuit and the Sámi, whose claims to the land and its resources are progressively heard more and more often.

sovereignty over unclaimed territory depends on its long-term effective occupation and control" (Młynarski 2010, p. 379). "Under international law, no country currently owns the North Pole and the surrounding area as they are the common wealth of humankind and do not belong to any one country. How can one claim such an unreal place? Can one own some mathematical formula or equation, or the point of intersection of the Earth's axis and the Earth's surface? (The two points where the rotation axis meets the surface of the Earth are known as the North Pole and the South Pole.) The North Pole, also known as the Geographic North Pole or Terrestrial North Pole, is subject to the caveats explained below, defined as the point in the Northern Hemisphere where the Earth's axis of rotation meets its surface. All lines of longitude converge there so its longitude can be defined as any degree value. At the North Pole, where the sun rises and sets only once per year, all lines of longitude, and hence all time zones, converge. There is no permanent human presence at the North Pole and no particular time zone has been assigned to it. Polar expeditions may use any time zone that is convenient, such as Greenwich Mean Time, or the time zone of the country from which they departed. What a beautiful example of geological and geographical indivisibility that is" (Lapouge 2010).

Issues concerning the exploitation of marine resources of the High North and of the seabed, as well as navigation problems, are regulated under international law without any need to create special regulations for the subregion (The Ilulissat Declaration 2008). Such a position was adopted by the "Arctic Five"—the USA, the Russian Federation, Canada, Norway and Denmark—in the Ilulissat (Greenland) Declaration issued by the ministries of foreign affairs of 28 May 2008.

Such an approach is very optimistic. In addition, as mentioned before, the region has already been legally and (geo)politically divided by the national borders of the eight states. The circumpolar North (also called the Arctic) of the beginning of the 21st century is a stable and peaceful region without wars and armed conflicts. This is due to the existence of a level of political will and the agreements based on significant international and inter-regional cooperation both within and pertaining to the region. "Furthermore, within the region a number of innovative political and legal arrangements have been developed, while certain devolution of power has also taken place, based on the human capital store of educated and skillful peoples" (Heininen 2007, p. 4).

The High North in recent years has become a target area for the growing economic, political and military interests of both the regional states and actors from outside the region, meaning on the one hand the major and growing powers such as Japan and China, and on the other the new international actors such as trans-national corporations and international environmental NGOs. One result of all of these factors and dynamics is that in these northernmost regions of the globe significant and rapid environmental, geo-economic and geopolitical changes occur. All of that, in my opinion, requires particular concern, especially when keeping in mind the security issues.

The exploitation of natural wealth will, obviously, belong to the countries exercising sovereign control over the territories in question. Demarcation of the borders has been established and the boundaries are undisputed and commonly

recognized. As regards that, the Arctic political and legal status is quite different from the one in the Antarctic which in contrast needed an international treaty. There are hardly any territorial issues in the Arctic, and if they appear, they are of multidimensional character. This means in practice that that the division of the sphere of influence is not the only reason for the on-going competition among the interested parties, but disputes are compounded by the difference in opinions regarding free passage through the Straits, territorial control over small islands, or another delimitation of the borders. They may at the moment appear trivial and have the outward appearance of "diplomatic squabbles" if not for the fact that together with disputes about the control over natural resources, they may in the future become a source of something much more serious. If we were today to point out the areas of major contention or unresolved territorial disputes, also the potential tension points in the High North, the list would include the following:

- "the dispute over the Northwest Passage between Canada and the United States; Canada claims that the passage is its 'internal waters,' which is not recognized by the US demanding the internationalization of the Passage by arguing that the passage is indeed an international Strait as are the Suez or Panama Canals,
- the Danish dispute with Ottawa over the ownership of Hans Island. Hans Island is located in the middle of the Nares Strait which is a strategic waterway and the ownership of it means control over maritime traffic in the entire strait,
- the Canada/US Maritime Delimitation dispute in the Beaufort Sea; there is a problem with delineating the border along the 141st meridian of west longitude as both countries see it differently" (Bafia et al. 2012).

Should it actually come to drilling and extraction, one may or even should expect disputes over several parts of the shelf, and particularly suspicions that one side exploits the deposits on the other side. However, these will be potential disputes among the members of the Council and within the framework of the United Nations Convention on Law of the Sea. Nobody from the outside will be able to squeeze into the Arctic any more.

According to some politicians and legal international experts, the problem of legal protection and governance of the entire region is extremely difficult and practically unmanageable. There are simply "too many fingers in the pie" and too many frameworks and institutions. O. Schram Stokke[52] is of the opinion that the best answer would seem to be a flexible approach to norm-building that seeks productive interplay with existing institutions. There already exists a legal regime, and although it is not a binding one but it can be strengthened (NRK News 2008). That train of thought was clearly followed by Norway and Denmark who invited the interested parties to a meeting in Greenland (May 28, 2008), whose objective was to "emphasize that law and justice pertain also to the Arctic Region… We should follow the direction towards civilizing norms and applicable regulations, and not towards anarchy" (Summary of the Norwegian Press 2008).

[52]Political scientist and expert on the Arctic at F. Nansen Institute in Oslo.

8.3 The International Legal Status of Svalbard: Debates and Disputes

Svalbard Archipelago appears to be one of the most fascinating parts of the High North as it is not only intriguing in the geographical aspect but also a political one as it is quite phenomenal due to its specific nature of international opportunities and challenges.[53]

Despite the clarification and a formal legal settlement of the border dispute in the Barents Sea which lasted for years, the issue of the Spitsbergen Treaty[54] interpretation remains open to this very day.

Svalbard Archipelago (formerly Spitsbergen) was (re)discovered[55] in 1596 by Willem Barentsz (Dutch), William Barents (English), Wilhelm Barents (German) and more than four centuries later is still considered by many to be *terra incognita*. It is a territory of Norway located in the Arctic, about 800 km north of continental Norway and 1100 km south from the North Pole. Svalbard comprises: the Spitsbergen Archipelago and a few islands not considered to belong to it, for example Bear Island. Very few people can find this place on the map, and even fewer are able to define the region's related issues. As evidenced before, even its proper name raises a number of questions. The name Svalbard refers to the group of islands with a total area of over 62 km^2 located between the Barents Sea and the Arctic Ocean. Nevertheless, 'Spitsbergen' is still the commonly known and used name, and the Norwegians themselves use it to define the largest island of the archipelago. The name Svalbard in turn, meaning the "cold coast," appeared in *Islandske Annaler* as early as in 1194 and presumably denoted present-day Spitsbergen.[56] Vikings were probably the first people who already in the 12th century learned of the archipelago. However, the Dutchman Wilhelm Barents is considered the undisputed discoverer of these islands. Throughout the 17th and 18th centuries the islands served as base camps for the Dutch, Danish, French, English and Norwegian whaling ships, as well as provided the hunting grounds for animal trappers. Over time, the importance of Svalbard increased as a stopover for the more and more frequent expeditions to the Arctic.

In the early modern era, Svalbard was inhabited by people of different countries, mainly Great Britain, Norway, Denmark, the Netherlands and Russia (then the

[53]It is worth noting that at the same time it remains a fairly marginal theme in the Norwegian political debate.

[54]The **Spitsbergen Treaty**, also known as the Treaty of Paris on Svalbard or the Svalbard Treaty, is a document regarding the Archipelago of Svalbard. The treaty was signed in Paris on February 9, 1920. More on the subject in: Czarny (2012).

[55]The exact date of Svalbard's discovery is not known. The Norwegian oceanographer Fridtjof Nansen believed that Norwegians reached the archipelago between the 9th and the 14th centuries. Vikings and Dutch fishermen visited the archipelago as well. This is exactly why the Barents expedition is considered to be a rediscovery of Svalbard.

[56]See also http://www.spitsbergen-svalbard.info/index2.html (Retrieved July 30, 2009).

USSR, and after the changes, the Russian Federation). They engaged in the economic exploitation of the region which provided favorable conditions for the development of fisheries, coal mining (West Spitsbergen) and was itself a natural laboratory for scientific research. The first attempts at determining the legal status of Svalbard date back to the second half of the 19th century. At the time, Norway, still in union with Sweden, was the most heavily engaged nation in Svalbard until 1905. Despite the growing interest in the region, the status of the territory had been unresolved, which in practice was considered *terra nullius*, a no man's land. In 1871, the Swedish-Norwegian government, recognizing the growing importance of the archipelago, both strategic and economic, commissioned an inquiry into the possibility of obtaining international support for its claim to the territory. However, this action was met with fierce opposition, especially from Russia which also expressed an interest in the region. As a result of exchange of diplomatic notes between the two governments, in the years 1871–1872 the international legal status of the de facto situation of Svalbard as *terra nulllis* (Буроменский and Тимченко 1990) was confirmed. The full settlement of the Spitsbergen issue by all states having interest in the archipelago became even more pressing in the late 19th and the early 20th centuries with the increasingly economically advantageous prospects of exploitation of rich coal deposits.[57] The Norwegian captain, Søren Zachariassen, brought the first commercial load of coal by ship from Svalbard to Norway in 1899, hoping to sell it there. This marked the beginning of a large-scale exploitation of these deposits as well as the rapid development of numerous mining companies.[58] A pioneer was the British-Norwegian company, Spitzbergen Coal and Trading Co., which in 1905 established the first mining town, Advent City. That very same year, the Norwegian-American company named the Arctic Coal Company commenced its operation and John M. Longyear, financed by it, established the town of Longyearbyen—the largest settlement in Svalbard, at the time representing the administrative center of the province.

As the population kept growing with the increasing intensity of exploration activities, the region started suffering from insufficiency of solutions, rules, provisions and regulations. There was an apparent lack of adequate legal norms governing both the international legal status of the territory as well as the rights and obligations of the people living there. The necessity of introducing changes and establishing a governmental administration continued to grow, fuelled by intensified tensions and conflicts between mine owners and the employees, representatives of the fishing industry and fur animal trappers, and so on. As early as the second half of the 19th century, out of the group of countries participating in the exploitation of Svalbard's resources, Norway took a leading role, which seemed to be only natural. Especially after the dissolution of the union with Sweden, the newly independent country deemed it one of the main priorities of its foreign policy to secure recognition of the

[57]The deposits have been already known to exist there for quite a long time, but throughout the 19 century, the steamers used the coal from them only to satisfy their own needs.

[58]Until the outbreak of World War I, the Russians had also coal mining operations there.

special rights of Norway to Svalbard. In 1907, the government in Oslo initiated discussions with the interested nations on the future status of the archipelago. The negotiations were continued in 1909 at the Intergovernmental Conference, and already in the invitation to the participants, Norway suggested its will of assuming administration over Svalbard. It was yet another attempt to implement plans formulated already in 1871. As in the past, it was met with staunch opposition from Russia, backed this time by the Swedish government which proposed establishing a joint Norwegian-Swedish-Russian council to administer the disputed territory as a *condominium*. However, having potential economic interest in the archipelago even though geographically distant, the governments of the US and Germany immediately opposed the Swedish proposal. It became obvious that Norway would not be able to acquire control over Svalbard, and that maintaining its *terra nullis* status would be in the best interest of all concerned states.

8.3.1 The Treaty of Paris on Svalbard

An international conference in Oslo was convened to finally settle the contentious issues. The delegates met in June 1914; however, given the tense political situation, especially between Russia and Germany, they were unable to reach any agreement. In practice, this resulted in postponing the issue concerning the future of Svalbard until the end of World War I.

This global conflict brought to the forefront the particular strategic importance of Svalbard and the Barents Sea region. For Russia, the issue was free access to the open ocean from the northern ports, among others including Murmansk.[59] The British Admiralty, on the other hand, was planning to establish a naval base there, realizing that the archipelago was a gateway to the Arctic. The peace Treaty of Brest-Litovsk signed by Germany and the Soviet Russia included a condition forcing the Russian side to support a German territorial claim to Svalbard.[60]

In 1919, during the conference in Versailles, called the Paris Peace Conference, Norway praised the contribution of its merchant fleet to the Entente's victory and one more time made a claim to be granted sovereignty over Svalbard. It was much easier that time to find allies, the more so as awarding Svalbard to the Kingdom of Norway was not only to sanction its dominant position in the archipelago but also provide a kind of compensation for the losses incurred by the Norwegian fleet which provided supplies to the Entente's nations during the war. France made it absolutely clear and the United Kingdom together with the United States agreed not to raise any opposition towards the proposal. The potential opponents of such a

[59]The Russians immediately built a railway line to Murmansk to secure a transport corridor across the Atlantic as an alternative route to avoid the Baltic Sea controlled then by the German Kriegsmarine.

[60]The Germans operated meteorological stations on Spitsbergen which were to be used to conquer the Arctic. Although plans were postponed, they were to be resumed after the war.

solution, namely Germany and Russia, had simply not been invited to the conference.

The preamble to the Spitsbergen Treaty states that the High Contracting Parties "…recognising the sovereignty of Norway over the Archipelago of Spitsbergen, including Bear Island, of seeing these territories provided with an equitable regime, in order to assure their development and peaceful utilization, have appointed their respective Plenipotentiaries with a view to concluding a Treaty to this effect…"[61] (http://www.jus.uio.no/english/services/library/treaties/01/1-11/svalbard-treaty.xml).

It can therefore be said that the current Svalbard's situation has its roots in the arrangements of the Peace Treaty of Versailles. The international agreement that recognized Norwegian sovereignty over Svalbard, but also safeguarded the rights of other signatories was finally signed on February 9, 1920. It constitutes an integral part of the agreements of the Pace Treaty of Versailles, officially titled as "Treaty concerning the Archipelago of Spitsbergen" (the Svalbard Treaty or the Spitsbergen Treaty, hereinafter referred to as the Treaty) and clearly represents a compromise on the issue.[62]

Although Article 1 grants "full and absolute" sovereignty of Norway, the High Contracting Parties agree to recognize it as "subject to the stipulations of the present Treaty," thus allowing to interpret the Norwegian sovereignty restrictively and significantly limiting its rights. Significant is also an entry stating the intention of signatories that "these territories (be) provided with an equitable regime, in order to assure their development and peaceful utilization" which in turn indicates a derivative nature of the sovereignty in view of the intended purpose.

British experts suggest[63] that the sovereignty is full and absolute although only in the sense of Norway's rights to decide on all matters except for those which were addressed or regulated in the Treaty. Although the parties do not recognize Norwegian sovereignty over Svalbard, in the sense of absolute and pre-existing (i.e. prior to the signing of the Treaty), they actually grant it by relinquishing their own

[61]The Svalbard Treaty was signed in Paris on February 9, 1920. It is worth noting here that the so-called "classic" way of acquisition of sovereignty by a state over a territory, based on customary law, meant denoted a peaceful occupation and administration of a given area by a country. This time, however, on the basis of an agreement, the Norwegian sovereignty was "granted" by a group of countries.

[62]Until the end of 2007, the countries in the northern hemisphere which did not accede to the Treaty included Mexico, Turkey, and Pakistan, and out of the EU Member states, the Czech Republic, Cyprus, Ireland, Luxembourg, Lithuania, Latvia, Malta and Slovakia.

[63]More on the subject in: Carl August Fleisher, The New International Law of the Sea and Svalbard. Retrieved March 03, 2012 from http://www.dnva.no/binfil, and Г. Д. Олейник, Присутствие Российской Федерации на архипелаге Шпицберген: политико-правовые, экономические и гуманитарные аспекты, Retrieved February 07, 2012 from http://severcom.ru/files/upload/actions.

claims to it. In return, the other parties obtained "an equitable regime" guaranteeing all the rights under the Treaty.[64]

The original signatories of the Svalbard Treaty were Norway, Denmark, Sweden, the Netherlands, France, Great Britain, Italy, the US, and Japan. At a later date, several other states acceded to the Treaty, including Poland in 1931. Russia (USSR) and Germany became parties to the Treaty signing it in 1924 and 1925, respectively.

8.3.2 Specific Features of the Svalbard Treaty Model

The Svalbard Treaty signed at the Paris Peace Conference in 1920 established a separate Norwegian administrative district by the name of Svalbard comprising all archipelago islands. Longyearbyen, on the western coast of Spitsbergen (formerly West Spitsbergen) was established the administrative center of Svalbard. As said before, the Treaty recognized "the full and absolute sovereignty" of Norway over the Archipelago but with significant limitations imposed on the sovereign rights. It granted the contracting parties rights of access to conduct scientific research and to exploit the natural resources in and around Archipelago as well as its territorial waters (Bereza-Jarociński 1984, p. 78).

An analysis of the Treaty's provisions allows to identify a few important principles specific for the "Svalbard model" (Østreng 1977, p. 14) as well as the solutions adopted by Norway's government between the years 1920–1925 to optimize the application of the model.

The fundamental principle of the Treaty which the Svalbard's status is based on is the internalization principle allowing international right of access and entry, as well as economic exploitation benefitting all signatories of the Treaty. This right applies to fishing and hunting in the territories of Svalbard and in their territorial waters as well as other activities in the waters, fjords and ports of the archipelago. In accordance with Article 2 of the Treaty, "Ships and nationals of all the High Contracting Parties shall enjoy equally the rights of fishing and hunting in the territories specified in Article 1 and in their territorial waters."[65] It should be noted that until the Paris Treaty on Svalbard entered into force, all States had that right by virtue of Svalbard's *terra nullius* status. Norway then has been entitled to take measures to ensure the conservation and the reconstruction of the flora and fauna of the region. It was stipulated, however, that the measures undertaken by the Norwegian authorities will be equally applied to all, regardless of nationality, but as

[64]For more on the subject see: Anderson, D.H. The Status under International Law of the Maritime Areas around Svalbard, Retrieved January 15, 2012 from http://www.dnva.no/binfil/download, and Ronnenberg, K. Protecting Svalbard, Retrieved January 15, 2012 from http://www.norway.org.

[65]The text of the Treaty is available at: http://www.jus.uio.no/english/services/library/treaties/01/1-11/svalbard-treaty.xml.

specified in Article 3—under the condition of subjecting oneself to the law and local regulations.

The internalization principle was linked with the norm of equal treatment of the subjects of all contracting parties regarding utilization of archipelago's natural resources and fishing in its waters. According to Article 3 of the Treaty, parties to the Treaty were accorded the right of equal access to the islands and carrying on "all maritime, industrial, mining or commercial enterprises both on land and in the territorial waters."[66] Similarly, their commercial operations were not to be in any way made subject to additional requirements than those of Norway, under the same conditions of equality. Article 4 also grants to all parties equal rights to use all the equipment and installations located in the territory of Svalbard, e.g. telegraph. In accordance with Article 7 of the Treaty, Norway is to ensure the effective exercise of the granted rights.[67]

Article 8 obliged the Norwegian administration to provide a set of comprehensive regulations of coal mining industry including social protection equally applicable to all. The Treaty limits Norway's administration right to collect taxes (among the lowest in the world) as well as export duties levied, and all such revenues may only be used only to cover expenses directly related to the administration of Svalbard,[68] which is called the principle of local use of revenue. Norway has also committed to submit a draft of its proposal of the regulations to the High Contracting Parties three months before the date fixed for the Treaty to come into force.[69]

Equally important limitation of Norway's sovereignty, this time within a military context, is Article 9 prohibiting Norway from establishing naval bases and land fortifications and their use for warlike purposes.[70]

The Svalbard Treaty model is completed by the principle of sovereignty whereby Norway was accorded "the full and absolute" sovereignty over the Archipelago, but its application is limited only to the territories specified by the Treaty while recognizing the principles of internationalization and equal treatment. A much more difficult issue turned out to be the international legal status of the archipelago. It should be emphasized that the recognition of Norwegian sovereignty over Svalbard did not resolve the issue of its relationship with the Kingdom of Norway. Since in addition a whole range of actors were included in the Treaty, from the point of view of Norway at the time its sovereignty over the archipelago was not possible without Germany's and the Soviet Russia's recognition (Østreng 1977, p. 24). Therefore, the period after the signing of the Treaty (1920–1925) was

[66]Text of the Treaty.

[67]Through the intermediary of the Danish Government, historical claims prior to 1920 were to be examined.

[68]This constituted the main restriction on economic sovereignty.

[69]Parties to the Treaty gave their approval for the Norwegian proposal.

[70]These provisions were amended in 1950 by the unilateral declaration of the government of Norway, without affecting the content of the Treaty.

devoted to solving key issues to facilitate a smooth functioning of its provisions. A good illustration of its efforts was, for example, the Mining Code (Østreng 1977, p. 67), given the fact that the mining industry was the dominant sector of the economy. Importantly and at the same time interestingly, the Code was modelled on the existing Norwegian mining experiences and legislative tradition, and was based on the principle of equal access and the rights of the first finder.

Almost at the same time the Treaty was ratified by Germany and the Soviet Russia and although the latter did not participate in the Versailles Conference, it thus managed to secure a favorable position in Svalbard.

The Norwegian parliament began an extended debate on the status of the Archipelago. From the beginning, two options prevailed: the first one advocating the inclusion of Svalbard to become an integral part of the Kingdom of Norway, and the second promoting the exercise of jurisdiction over the islands as a dependent territory.[71] Finally, the Storting declared Svalbard a part of the Kingdom.[72] Thus, as a matter of course, the Norwegian penal and civil law, and judicial proceedings were in force in the province. In contrast, administrative law had to have a clear provision that it also applies to the territory of Svalbard. The issued document also laid down provisions of the administrative organization and property rights in the islands. The Act did not, however, indicate the date of entry into force of the provisions. It was left to the decision of the King who on August 7, 1925 declared that the provisions of the Act would come into force on the same date as the formal assumption of sovereignty by Norway over Svalbard, which took place August 14, 1925. In the name of His Majesty Haakon VII (1872–1957), King of Norway, Paal O. Berg, Norwegian Minister of Justice formally annexed the archipelago of Svalbard in Longyearbyen (Østreng 1977, p. 23).

Particularly noteworthy is the fact that Svalbard has a special status towards the Norwegian State. Although Svalbard is part of the Kingdom, it does not have the status of municipality, county or an electoral district. The islands are administered by the Sysselmannen (Governor) of Svalbard who represents the Norwegian government in exercising its sovereignty over Svalbard, including the administrative and judicial executive authority. The Governor holds the responsibility for public safety and environmental protection. One of important objectives of the Governor is to maintain healthy and peaceful relations with the Russian community in Barentsburg. The governor acts as chief of police and other public services, which in the absence of other representative bodies makes this position the highest authority in Svalbard.

[71]The international law defines a dependent territory in a number of different ways. For example, L. Ehrich understands by it an entity which is a subject of international law only in some cases, while in others is represented by another state. For Ehrich, the determining criterion is whether the entity is represented by another state in the international arena. According to A. Klafkowski, a dependent territory is an entity which under an international agreement transferred a considerable number of functions and powers to the other state. More on the subject in Sobczyński (2006).

[72]The document was issued June 17, 1925.

It can be said that except for limitations expressed explicitly in the Treaty, Norway was entrusted with the legislative, judicial and administrative authority on the islands. Any entity which carries out activities in the archipelago is subject to Norwegian legislation: civil, criminal and administrative law. The overriding principle is that the Norwegian legislation applies to Svalbard, unless the contrary has been stipulated in provisions of the Treaty.

After the German invasion of Norway in 1940, Svalbard also was controlled by the Wehrmacht. The Germans thus gained access to valuable weather data for aerial bombing raids on Great Britain. When in November 1944, after the invasion of Finland, the Red Army entered into the northern territories of Norway, the Soviet Foreign Minister W. Molotov suggested changes to certain provisions of the Spitsbergen Treaty. Moscow insisted that Norway's sovereignty over Svalbard be replaced by the joint Soviet-Norwegian administration, *condominium*, while Bear Island to become an integral part of the USSR. The Norwegian government-in-exile in London strongly objected to these designs while leaving open the question of (de)militarization of Svalbard. The Soviet officials renewed their efforts in 1946, but the onset of Cold War changed the priorities then and the matter was set aside. To emphasize the Russian presence in the archipelago, the Soviet miners returned there despite questionable economic benefits of the undertaking. The next phase of different interpretations regarding Svalbard status was brought about by the Kingdom of Norway's accession to the North Atlantic Treaty Organization in 1949. As mentioned before, Article 9 of the Treaty expressly forbade Norway the use of the territory of Svalbard for military purposes. In 1952, the government in Oslo declared Svalbard neutral, but should its neutral status be violated, NATO forces could overtake it. Fortunately, there has been no conflict over the matter, so the declaration has become a dead letter. The steps taken by USSR were limited to unsuccessful objections to building a new airfield on Spitsbergen as well as telemetry stations and the installation of satellite communications equipment.[73]

8.3.3 *Interpretation of the Svalbard Treaty in the Light of Changes in International Public Law*

The growing demand for energy sources and increasing interest of various countries in deposits of oil and gas in the Northern Areas provided the basis for an intensified controversy surrounding the differing interpretations of the Paris Treaty provisions of 1920. Recognizing an opportunity to obtain certain rights, especially those over the continental shelf and maritime areas beyond territorial waters, some States-Parties to the Treaty try to present an interpretation leading to a conclusion that Norway's position on the matter is contrary to the Treaty and infringes

[73]For more on the subject, see: Dag Avango, Svalbard Archaeology. Retrieved January 09, 2012 from http://www.svalbardarchaeology.org/history.html.

international law. Without a doubt, there is a great deal at stake, given the data on estimated deposits of oil and gas in the region. Furthermore, from a legal and political perspective, the 1990s which brought the dissolution of the Soviet Union and the end of the Cold War did not silence the debate about Svalbard but the discussion entered a new phase. As is generally known, the issue is deeply rooted in the past and related to much varying approaches to the interpretation of the Treaty literal provisions. This problem appears to be particularly complex in the light of changes in international public law that have occurred over the last few decades.

The States-Parties to the Treaty of 1920 are in agreement that its provisions refer to the land territory. This is quite understandable, especially since the territories comprising Svalbard had been described in two ways: by listing the islands by name or by defining the territory within which they are located.[74]

The latter approach has been a commonly applied practice especially during the formation of European colonial empires. If thus defined territory in its entirety was on land there would be no limits on the application of the Treaty's legal regime (see the political map of contemporary Africa). However, in the case of maritime areas which are within the defined territory it is different matter and then the internal jurisdiction does not apply and here the general rules of public international law come into play.[75]

As for the territorial waters, under the general principles and rules of international law, the sovereignty over land generates sovereignty over specified maritime waters.[76] Therefore, the territory definition specified in Article 1 of the Treaty should be extended to the territorial waters around each island of Svalbard. In 1920 Norway proclaimed the breadth of the territorial sea of 4 nautical miles around Svalbard, while in 1970 (Limits in the Sea 1970) and then in 2001, the government in Oslo kept changing the width and baselines. It was carried out in such a way as to exercise its sovereignty rights over the largest sea area. Another change took place in 2003 when the breadth of the territorial sea around Svalbard was extended from 4 to 12 miles (UN 2004).

Since the legal regime over maritime territorial is secondary to the land territory and the terms internal and territorial waters are of ancillary nature, it should be concluded (especially following the opinion of the non-Norwegian experts) that provisions of the Paris Treaty (Art. 2 and 3) in section on the maritime area should be applied not as it was in 1920 but in accordance with the current laws (Anderson 2009).

The newly emerging issue and the subject of dispute have been exclusive economic zones and fishing zones. These concern the 200-nautical-mile Fisheries

[74]"All the islands situated between 10° and 35° longitude East of Greenwich and between 74° and 81° latitude North." See Spitzbergen Treaty.

[75]The only exception are some island countries of Asia and Oceania which claim the sovereignty rights over the area well beyond the 12-nautical-mile territorial sea. Such an approach, however, has not obtained universal recognition. See The United Nations Convention on the Law of the Sea of 10 December 1982, Art. 46–49, Journal of Laws, 2002, No. 59, Item 543.

[76]See Grisbadarna case, Hague Court Reports (1916).

Protection Zone (FPZ) around Svalbard and the Exclusive Economic Zone, non-overlapping with it, extending north from the coast of Norway.

zThe establishment of the 200-nautical-mile Fisheries Protection Zone around Svalbard by Norway in 1977 was to ensure protection of the living marine resources and their sound management. The Norwegian authorities deem the rules governing the management of the maritime zone not to prejudice the provisions of the Treaty in any way and the measures to regulate fisheries result from the objective needs of conservation and resource management. The rules also take into account Norway's prior obligations under the international law for this area. Norwegians are of the opinion that even if the fishing rights in the zone are reserved exclusively for Norwegian fishermen, it is still being managed in a non-discriminatory manner to others. On the other hand, other countries argue that since the Treaty provides for the equal rights to fishing for ships of all States-Parties, also beyond the territorial waters, the Norwegian State cannot establish its own regulation in this respect or employ coercive measures. They therefore consider Norway's approach consistent with neither the Treaty nor the law of the sea, as well as contrary to the fundamental principles of resources management.

According to Norway, from the outset, its position is based on the 1982 United Nations Convention of the Law of Sea (UNCLOS) of 1982, Montego Bay. In accordance with its provisions, Norway as a coastal State has a right to establish a 200-mile Exclusive Economic Zone around the archipelago, and as provided for in Article 56, the country has "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the sea-bed and of the sea-bed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds" (UNCLOS 1982, Art. 56). The Convention, in addition to granting certain rights, imposes certain obligations on the coastal State and should the country fail to fulfil them, it is subject to international liability. Particular attention should be given here to the responsibility to protect and preserve the resources in the EEZ, where the choice of measures to meet this objective lies in general with the coastal State. In accordance with Article 73, while exercising its sovereign rights, the coastal State may take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the legal rules and other regulations adopted in accordance with the provisions of the Convention. The Norwegian authorities, mindful of the State obligations, attempt to abide by them through appropriate regulations and control, including as necessary the use of coercive measures. This concerns essentially the cases of illegal fishing, posing the biggest threat to the proper management of the resources. Moreover, Norway seeks to promote international cooperation in accordance with the international law of the sea on adoption and implementation of the regulations on fisheries.

The issue of Svalbard Treaty interpretation has been the subject of discussions between Norway and the United Kingdom. The United Kingdom, since 1977—that is the establishment of the Fisheries Protection Zone around Svalbard by Norway—

has been raising objections to this decision, for example in a note dated March 17, 2006. The UK presented its interpretation of the Treaty as regards two points:

1. The Svalbard Archipelago and Bear Island generate their own maritime zones, which are separate from other Norwegian zones under the provisions of the Convention on the Law of the Sea.
2. The UK considers the marine zones around Svalbard subject to regulations of the Treaty, and in particular to the following provisions:

Article 3 states that all States-Parties will have "equal liberty of access and entry for any reason or object whatever to the waters, fjords and ports of the territories specified in Article 1" (i.e. Svalbard and other nearby islands) and will be able to "carry on there without impediment all maritime, industrial, mining and commercial operations on a footing of absolute equality, subject to the observance of local laws and regulations."

Article 8 requires Norway to establish a legal regime "for the territories specified in Article 1 mining regulations which, especially from the point of view of imposts, taxes or charges of any kind, and of general or particular labour conditions, shall exclude all privileges, monopolies or favours for the benefit of the State or of the nationals of any one of the High Contracting Parties, including Norway." All kinds of "taxes, dues and duties" shall be levied only if they are justifiably necessary (all quotes from http://www.jus.uio.no/english/services/library/treaties/01/1-11/svalbard-treaty.xml).

With the above note, the United Kingdom reaffirmed the need for sound management of resources and cooperation on combating illegal fishing and stated that the UK would comply with the Norwegian regulations on Fisheries Protection Zone provided they are consistent with the provisions of the Svalbard Treaty.

What emerges from the above is that the contentious point or rather a question of differing interpretations is the issue of the continental shelf. Examining the first paragraph of the discussed note, it becomes obvious that it is a clear response to Norway's long maintained position contending that the Norwegian continental shelf includes Svalbard and that this very fact can be documented by the shape of the shelf itself.[77] In addition, Norway claimed in the past that Spitsbergen does not generate a separate continental shelf and raw materials, for instance crude oil, should be extracted and taxed on the same basis as the mainland's continental shelf. This approach was stressed very clearly by J.G. Støre (Norway's Foreign Affairs Minister) who during the visit of Germany's foreign minister in Northern Norway in 2006 expressed the view that regardless of the Treaty's interpretation, Norway would decide on the possible extraction of energy raw materials in the region.

The other States-Parties do not share that view claiming that the Archipelago should be administered in accordance with the Treaty of 1920. The response came during the conference of Ministries of Foreign Affairs of the Nordic countries in

[77]In a statement to the press in 2006, Prime Minister J. Stoltenberg confirmed this position stating that in Norway's view the continental shelf in its entirety extends from Norway to Spitsbergen and beyond. See *Aftenposten*, June 06, 2006.

April 2006 from Minister J. G Støre who desired the US, EU, Russia and other countries to appreciate and understand the importance of Norway in the preservation and development of the Northern Areas, i.e. the High North. J.G Støre also stated that Norway acted in the waters around Svalbard in accordance with the provisions of international law.

At this point of the discussion, the issue of continental shelf should be perhaps examined more thoroughly. The development of the continental shelf concept took place after WWII and its legal basis was set in 1964 when the provisions of the International Convention on the Continental Shelf entered into force. This issue is also regulated by the UN Convention on the Law of the Sea of 1982 which came into force in 1994. Article 77 of the Convention states that "the coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources."

It is important here to note that sovereignty over the continental shelf is acquired automatically (although the geological evidence must be provided) and no political proclamation is required (UNCLOS, Art. 77, sec. 3). Hence the continental shelf rights automatically follow from the State's sovereignty over land territory of which the continental shelf is a natural prolongation up to 200 nautical miles.

Geological studies have shown that Svalbard is situated on the same continental platform as mainland Norway. According to the Norwegian authorities, Svalbard's continental shelf is a natural extension of the Norwegian continental shelf. However, there are different opinions on the issue which claim that Svalbard as an archipelago of a notable size has its own continental shelf. In most cases, coastal states have a continental shelf that stretches up to 200 nautical miles. But under Article 76 of the Convention, it can be extended beyond this limit providing that a country submits a claim along with geological evidence supporting it, and proposes a revenue sharing system from exploitation of the extended area to the Commission on the Limits of the Continental Shelf. In the case of Norway and Svalbard, the issue is more complex since the Convention on the Law of the Sea does not specify any method how to delimit the continental shelf between States with opposite or adjacent coasts. Article 83, section 1 merely specifies that "The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution" (UNCLOS). Therefore, one could say that the Commission suggests negotiations to reach an amicable settlement of the issue but it is hard to imagine such negotiations between Norway and Svalbard when the latter is de facto part of the Kingdom of Norway. Additionally, the core issue is the approach: if one agrees that Svalbard indeed has its own continental shelf, its legal regime should follow that of the land territory. This, in turn, would mean allowing for exploitation of the natural resources by all States-Parties of the Treaty, to which Norway for obvious reasons does not want to agree.[78]

[78]More on the subject in: Fleisher, C.A. The New International Law of the Sea and Svalbard.

The legal framework of the archipelago is complemented by the Svalbard Environmental Protection Act which took effect on July 1, 2002. Additional solutions on expanding protected areas, regulations on protection of flora and fauna especially endangered and issues pertaining to environmental protection and their planning were implemented in 2003 (Ronnenberg).

All of that might be a potential source of conflict especially considering the fact that it is a region with a great wealth of natural resources. Significant financial benefits can be generated through the natural resources exploitation and, additionally, in view of the dwindling energy resources the beneficiary state may also gain important strategic advantage.

To this day, it has not been possible to arrive at a satisfactory solution to these issues. In practice, three scenarios are being considered:

- revision and updating of the Spitsbergen Treaty; given the priority of the preservation of peace and the strengthening of international stability, it seems to be the optimal but a highly unlikely scenario. Norway takes a firm stand against accepting any proposals limiting its sovereignty over Svalbard, which has been reflected in the statements and speeches of its foreign ministers[79];
- the settlement of each dispute by the International Court of Justice; such a solution requires goodwill among conflicting parties, which is not always achievable;
- an uncontrolled, almost wanton exploitation of the marine resources and sea-bed around Svalbard; this, regrettably, might be the most advantageous solution for the states of greater potential and determination. This is the worst-case scenario since it completely ignores the environmental impact.

It is difficult to fully exclude the likelihood of the third option. Unfortunately, this possibility may become more probable taking into account the depletion of natural resources in other parts of the world and the growing importance of control over the natural resources driven by the world economy and politics.

The special status of Svalbard as a part of part of the Kingdom of Norway is also reflected through the attitude towards the Schengen Area which Norway joined in 2001. Since all nationals of the States-Parties to the Treaty are guaranteed free access and entry to the Archipelago, the Svalbard territory was excluded from the Schengen Agreement.

Some of the stakeholders, given their diverse and vital interests in the archipelago, may question this interpretation of the Treaty's provision. Thus, if the negotiations do not yield a solution to the dispute, the matter will be referred for settlement to the International Court of Justice in the Hague.

Based on the above considerations, it can be concluded that from the point of view of constitutional and international law Svalbard presents a special case and is a

[79]A good example here is provided by the statement of the Norwegian Foreign Minister Jonas Gahr Store: Svalbard—an important area. Retrieved October 17, 2011 from http://www.regjeringen.no/en/dep/ud.html.

political phenomenon unlike anything else in the world. It might have resulted, for instance, from the fact that the Norwegian authorities when constructing a formula of the sovereignty over the archipelago could only invoke their own legislative, administrative and political experiences.

The Svalbard political phenomenon manifests itself in many ways. The Svalbard Treaty has 39 signatories[80] with varying degrees of interest in the archipelago. However, only Norway and the Russian Federation which have coal mines on the islands take full advantage of the rights accorded under the Spitsbergen Treaty. Other countries, including Poland, conduct scientific research there.

It needs to be stressed that the exercise of sovereignty by Norway over the archipelago is not guided by its economic activity. In accordance with the political tradition of the Kingdom, it is to provide all stakeholders engaged in economic activity with the best possible business environment in Svalbard.

The Svalbard Treaty principle of demilitarization might also require a closer examination. When declaring Svalbard a demilitarized zone, the Norwegian government stipulated that the NATO forces have the right of military presence there if there is a threat to Svalbard's neutrality. Given this provision, one can hardly call it a complete demilitarization.

Another interesting matter is the issue of taxation in Svalbard. According to the Treaty, dues may be collected in Svalbard only if they are necessary to cover the internal cost of administration and services. This results in lower taxes than mainland Norway and although Svalbard is an integral part of the Kingdom of Norway, the Archipelago does not directly contribute to the Norwegian budget.

Some people not that familiar with Svalbard may consider its political and economic importance of little consequence compared to its fame of a tourist destination, for example much appreciated by sailing enthusiasts. Equally often the public underestimates the role of Norway in the Archipelago's policy making by claiming that it is limited to administration on behalf of the international community especially the Parties to the Treaty[81] in particular. The truth is, however, that along with the growing energy needs, the interest in Svalbard and its natural resources increases, mainly in oil and gas. In February 2008, the Svalbard international seed bank was opened to store and preserve valuable genetic resources.[82] Its main task is to conserve crop biodiversity and adapting the food supply to the impact of climate changes. Spitsbergen location as a repository for housing crop genetic resources was decided not only because of its suitable climate (permafrost country) and the absence of tectonic activity, but also because it is a region of stability devoid of political tensions. This is because of Svalbard's specific legal and international

[80]The full list of signatories can be found at http://www.lovdata.no/cgi-bin/udoffles?doc=tra-1920-02-09-001.txt&.

[81]See http://www.regjeringen.no/en/dep/ud/about_mfa/Minister-of-Foreign-Affairs-Jonas-Gahr-S?Speeches-and-articles/2006/Svalbard-an-important-arena.html?id=420843. Retrieved July 15, 2008.

[82]The project was launched in 2006. More on the subject at: http://www.commondreams.org/headlines06/0619-07.

status and even though Norway has sovereignty over the Archipelago, the Spitsbergen Treaty and other legislation consider the economic, political and scientific research interests of a variety of stakeholders. Such a legal approach and understanding, combined with imagination and good will to utilize its advantages in practice may ensure peaceful coexistence of nations in this relatively small region.

The case of Svalbard status remains quite unique and at the same time serves as a proof of international law certain definitional flexibility.

8.4 The Need for International Cooperation and Coordination

The "Megatrends" mentioned in Chap. 4 have the potential to transform societies across social categories and at all levels, from individuals and local-level players to global structures, and eventually to change our ways of living and thinking. They synthetize the most current opportunities and challenges in view of the changes and tendencies occurring in the High North. They also suggest that in the context of the potential for exploitation of natural deposits and the development of new navigation and trade routes, as well as the consequences of climate warming, it seems absolutely necessary to point out the growing importance of the Northern Regions for the international cooperation.

The economic interest reflects the global attentiveness to the region, and the political interest and the increased military presence pose a challenge not only to the stakeholders.

All that breeds worries resulting from the traditional problems of the High North: political and economic rivalry, and the presence of military installations and fleets of warships (the heritage of the Cold War). All of these aspects, taken jointly or separately, may one more time become a source of threats to the stability and development of the region in its new geopolitical context. "Therefore, the widespread assumption of the major state players in the sub-region, as well as that of a majority of High North researchers, that it is necessary to maintain the political status quo and to solve old and new disputes through political cooperation in compliance with international law, is accompanied by a trend to develop scenarios reflecting the growing political and military rivalry and the threat of serious conflict" (Osica 2010, p. 13).

The increased activity in terms of opportunities and needs of exploitation of natural resources in the High North provides also, regrettably, the basis for divergence of interests and even conflicts among the indigenous peoples in individual Arctic states and the industry of exploitation and processing of raw materials. It becomes particularly visible if the state has not settled with indigenous people their legal rights and claims on their traditional lands. It is then when real problems emerge within the sphere of the national and international laws.

According to some experts, the region is doomed to conflict and it is an area as demanding as the climate there. Young researchers fascinated by the great dynamics of developing situation there and not fully trusting reason and common sense in international relations, go even as far as saying: "The arguments over the Arctic seem unavoidable. There is no certainty as to the form of the dispute, whether it is going to be only diplomatic skirmishes or will it evolve into an armed conflict or a new arms race" (Bafia et al. 2012). An attempt at addressing this issue was the Seminar on Security Prospects in the High North, hosted by the Icelandic Government, which took place in Reykjavik on 29 January, 2009.[83] The seminar was divided into three plenary sessions to discuss current and future strategic implications of the developments in the High North, and possibilities of further and closer cooperation in the region. The list of speakers included: Minister of Foreign Affairs of Norway J. Gahr Støre, Minister of Defense of Denmark S. Gade, Deputy Minister of Defense of Norway E. Barth Eide, Minister for International Defence and Security of the United Kingdom Ann Taylor, Assistant Deputy Minister, International Security of Canada C. Swords, Supreme Allied Commander Europe General John Craddock, Supreme Allied Commander Transformation General James N. Mattis, Chairman of NATO's Military Committee Admiral Giampaolo Di Paola, Professor of Political Science University of Calgary Dr. Robert Huebert (political sciences), Head of European Foreign and Security Policy Program, German Council on Foreign Relations (DGAP) Dr. Henning Riecke, and the former Director of SIPRI[84] Dr. Alyson Bailes.

The then Prime Minister of Iceland, Geir H. Haarde, pointed out that since the end of the Cold War the High North was a peaceful and peripheral area. The consequences of climate change and the increased interest in new economic opportunities of exploitation and transportation of raw materials in the North definitively strengthen the strategic position of the region in the global dimension. The presence of NATO in the region so far, in his opinion, has been only minimal and not directed against any particular country of this region. The opinion was shared by Arni Pall Arnason, from the Althingi Foreign Affairs Committee, who admitted that after the withdrawal of U.S. forces from the Icelandic base in Keflavik, Iceland had left a huge gap in its security system. Iceland is pleased with the interest expressed by NATO but expects a similar approach from the European Union. Although the relations with Russia in *soft security* are good, however, in the context of *hard security* they become an issue in view of increasingly more noticeable attempts of Russia to gain a dominant position in the region. A. Pall Arnason emphasized that although the Arctic Council fulfilled its role very well,

[83]Organized by the Icelandic administration (a few days before, the government stepped down) together with the NATO Defense College.

[84]The Seminar was to be presided by the Minister of Foreign Affairs of Iceland, Ingebjørg Solrun Gisladottir, but due to her convalescence and engagement in coalition negotiations to form an interim government, she was substituted by Arni Pall Arnason, deputy head of the foreign affairs committee of the parliament and the spokesman for the Social Democratic Alliance in foreign affairs.

when confronted with all the international challenges, in the opinion of Iceland, it was of utmost importance that NATO developed a new regional strategy for High North.[85]

The consecutive speaker, Jaap de Hoop Scheffer—NATO Secretary General, thanked the Norwegian minister of foreign affairs for drawing the Alliance's attention to the issues of the High North[86] and admitted that the Alliance's agenda had been dominated by events somewhere else. But the High North will undoubtedly require a stronger presence of the Alliance. He also confirmed that global challenges resulting from climate change constituted also a strategic problem for NATO. According to him, the most pressing issues were as follows:

1. The navigation and maritime transport, including NATO's participation in search and rescue missions, and relief operations in case of accidents or malfunctions of tankers that would present a risk of ecological hazards[87];
2. The territorial disputes over the delineation of the 200 nautical mile limits of the Exclusive Economic Zones, as well as over the extension of continental shelves[88];
3. The steadily increasing military activity in the region, and Russia's presence in particular. The situation would require a larger NATO presence in the region or rather establishing appropriate cooperation structures, for example at the forum NATO-Russia.

At the same time, Scheffer added a note of caution saying that there were many regions, but there was only one NATO. Therefore, it must be ensured that, looking today at the High North, and perhaps in the future at other regions, we did not get drawn down the path of regionalization, because that was the path to fragmentation which would pose a threat to NATO's effectiveness.

The panelists representing NATO (General J. Craddock, General J.N. Mattis, and Admiral G. Di Paola) confirmed that NATO's engagement in the Arctic was a challenge because it required developing new strategies and new capabilities determined by the particular conditions of the region (climatic, geological, and political). It would also be the Arctic-capable military test for NATO[89] and a performance test for operational effectiveness which might prove the leading role of the Alliance in the international arena. Considering, however, the political situation in the region and a variety of interests of the main regional players, it seemed justifiable to gear the activities of NATO towards cooperation in joint military

[85]According to A. Pall Arnason, the government is already asking a question whether the current Iceland-based radar system and the airspace surveillance patrols will be sufficient to secure Iceland's interests in the future.

[86]J.G. Støre gave two briefings on the region.

[87]More on the subject in: Who pays for rescue services in the Arctic? Retrieved March 18, 2012 from www.norden.org.

[88]In his opinion, NATO could become a discussion forum on the matter for the Arctic states.

[89]"If NATO manages in the High North, it means that the Alliance's military forces can handle the situation in any other region," said General James N. Mattis; own archive.

exercises, planning activities across the full range of military operations rather than establishing military bases. Admiral Di Paola emphasized that the Arctic should not become one of the elements of the relations between NATO and Russia, in other words a subject of conflict between superpowers. No effort should be spared so that the melting ice cap does not herald the thawing of the Cold War.

A wide-ranging view on the problems in the High North was presented by representatives of academia. R. Huebert, professor in the Department of Political Science at the University of Calgary, stressed the new geopolitical situation in the Arctic.[90] Therefore, it seems that NATO will have to develop a long-term strategy considering the multitude of interests and stakeholders. R. Huebert emphasized the danger of a potential breakdown in the traditional cooperation within the Alliance due to arguments or diverse interests of individual partners in the region. Against the background of the enormity of problems and challenges to be faced by all the Arctic stakeholders, he reiterated that part of the preparation to meet the challenges would be the equipping and modernization of navy with vessels of combat-ready capability. He also pointed out that the increased resource extraction and shipping activities in the High North might increase the potential for maritime disasters and environmental pollution.[91]

Dr. H. Riecke, Head of European Foreign and Security Policy Program, German Council on Foreign Relations (DGAP), surmised that the challenges in the High North concerned two main areas: the environment and transportation. Apart from the potential maritime accidents and ecological disasters, there emerges a viable possibility of the dependency of the global economy on the new shipping routes which might result in a tremendous vulnerability of global markets to every potential disruption. That is exactly why of utmost importance is building trust and a stable management of communications systems in the straits and shipping routes. The military presence should be focused on monitoring, surveillance and patrolling, but also on intelligence cooperation, joint training maneuvers and military exercises, as well as search and rescue mission preparedness. NATO in the High North could support the cooperation in judicial matters and become a platform for discussions on all contentious issues.

The afore-mentioned approaches and opinions hardly make one optimistic about the expected developments in the High North. Contrary to those somewhat ominous predictions, the social and economic developments in the High North, and in the Arctic region in particular, have become a very important topic of political dialogue and discussion both globally and regionally, as well as internally in individual

[90]Apart from traditional regional players (Russia, US, Norway, Denmark, and Canada), whose interest in the High North and activities in the region keep growing, there appear new actors like China (interested in the scientific aspect and in transport opportunities) and Japan (which has cooperated scientifically with Canada in energy derived from nontraditional sources). In addition, the USA and EU begin to perceive the North as one of the key priority areas in international politics.

[91]In the specific conditions of the region, in his opinion, the majority of solutions and rescue methods applicable elsewhere are ineffective.

states. The discussions clearly point out to the need for coordination of international activities and actions indispensable for achieving effective resolution of issues in the region. This is fully confirmed by O. Osica who writes: "During the Cold War, the High North was a 'strategically frozen' area. The change of the strategic context after 1990 brought about the cooperation between those countries. However, the cooperation has not solved the legal and political disputes; neither has it accomplished the demilitarization of the sub-region. But it certainly has created better foundations for a political dialogue" (Osica 2010, p. 20). The very starting of such a dialogue is quite phenomenal considering that, for example, Norway and Russia fought over supremacy in the region as early as at the end of the Middle Ages and fairly recently had a serious dispute over the common border in the Barents Sea.

Indeed, the developmental processes in the Arctic seem to gain momentum and in order to meet many of the new challenges there appears a clear need for facilitating international actions. In the contemporary world, international cooperation is absolutely mandatory, be it only for the fact that no individual state is practically able to meet all the challenges alone. In international politics, there emerged a new phenomenon of replacing one major global threat with several different dangers which allows for a new approach now that the security is no longer perceived entirely in a military context. That seems to provide an optimistic starting point for the hope that the race for the North Pole will not end in a military confrontation.

The strong involvement of the Nordic states in the Arctic is perceived as natural. From their perspective, in the few upcoming years the High North will pose the biggest challenges, and particularly in three areas: climate changes, natural resources (mostly energy-related) and renewable resources (fisheries), and Russia's ongoing great transformation. They fully realize that the major player in the region today is the Russian Federation which has the longest coastline of the Arctic nations and possibly the most extensive experience in acting in these extremely difficult conditions. Moreover, Russia has 18 icebreakers (which is more than the all the Arctic states combined). Because of that Norway and all other Nordic states are adamantly in favor of including Russia in all aspects of the cooperation. The basic adapted principle is that the traditional perception of Russia should be abandoned: Russia should not be part of the problem but a part of the solution. It is the more so as Russia so far had shown itself as a good partner in the regional cooperation forums. The Nordic states also believe that cooperation in the Arctic Region must be open to new partners and cannot be restricted only to the Arctic states. The strategy of openness to all the interested parties was endorsed by Norway and other Nordic states in their respective presidencies of the Arctic Council. The High North was one of the main points of the report on challenges of the Nordic Cooperation on Foreign and Security Policy prepared by Thorvald Stoltenberg, presented and published on February 9, 2009.[92] In the assessment of this group, in spite of the

[92]See Nordic Cooperation on Foreign and Security Policy, Proposals presented to the extraordinary meeting of Nordic foreign ministers in Oslo on 9 February 2009. Retrieved October 25, 2012 from http://www.regjeringen.no/upload/UD/Vedlegg/nordicreport.pdf.

increased interest in the High North and the exploitation of its resources, the key issue is maintaining a low threat level in the region (the principle of: High North—Low Tension).

The group's initiatives are developed mainly within the Cooperation Programme for the Arctic (the Nordic Council of Ministers) which formulates projects and actions.[93] In this unique and much vulnerable region, the Nordic states have not only the vested and obvious interest but also a long history of solving problems in a joint way. Denmark, Iceland, Norway and the Faroe Islands reached an agreement (in 2006) on the disputed area in the North Atlantic, south-east of Spitsbergen. "The point was that according to the law of the sea, all four involved states could make claims to it, but they finally reached an agreement."[94] In 2006, Norway and Denmark signed a historic agreement on the delimitation of the continental shelf and the maritime boundary between Svalbard and Greenland (the area of some 150,000 km^2).[95] The division was based on the principle of the median line, the very same presented by Norway in its negotiations with Russia in the dispute over dividing the Barents Sea. Their agreement, however, does not include settling the stewardship of the continental shelf and sea waters. In essence, it means also that it does not pertain to the issues regarding the resolutions of the Svalbard Treaty giving the other signatory countries (there are 40 of them) "equal rights" to certain economic activities "on land and in the territorial waters" of the archipelago.[96]

The Norwegian claims of exclusive rights to the Svalbard archipelago are not the only problem. Canada and Russia maintain that the water passages close to their northern coasts are their territorial zones and wish to control and regulate shipping in the Northwest Passage and the Northern Sea Route. In turn, the US and EU maintain that the Arctic waterways are international straits through which the right of free passage should be assured.

Everything seems to lead to a complicated prospect of clear and quick solutions. The right one, although possibly difficult in the sense of negotiations, was presented by the ministers of foreign affairs of Norway and Denmark, J.G. Støre i P.S. Møller (at the meeting in Oslo on June 15, 2008), who said that when other countries ask them about a legal framework concerning the matter, they may only give the following answer: "Yes, the Law of the Sea and the International Law" (http://www.aftenposten.no).

Faced with potential conflicts, the interested states engaged in a dialogue in multilateral fora. On May 28, 2008, in the Ilulissat Declaration, the coastal Arctic states expressed their willingness to cooperate and spare no effort to resolve outstanding disputes in accordance with the Law of the Sea (similar declarations were made at the forum of the Arctic Council). The joint declaration talks about the

[93]More on the subject at http://www.norden.org/arktis/sk/samarbeidsprogram.as.

[94]See Topmøde på Grønland om Arktis norden, http://www.norden.org/webb/news, May 28, 2008. Retrieved March 03, 2012.

[95]See *Aftenposten*, February 21, 2007.

[96]See *Dagsavisen*, February 21, 2007.

challenges related to climate change and acknowledges that the international legal framework applies to the Arctic Ocean. Although it is only a declarative statement, it certainly proves the will for cooperation by the "Arctic Five." It also rejects all disputes which may be a source of potential conflicts. A good example of institutionalized cooperation of the Arctic states and the indigenous peoples of the High North is the Arctic Council which is an intergovernmental forum for cooperation and an attempt at coordinating joint efforts for the common benefit. The Council is splendidly complemented by the "Arctic Frontiers" which are annual conferences of the Arctic states providing a forum for discussion also for other countries interested in the future of the North.[97] One must not forget about the special role of UN in maintaining international peace in the region. It was the United Nations that has planned an international conference for the year 2020 at which, after considering all the submitted petitions by the UN Commission on the Limits of the Continental Shelf, the recommendations to coastal States on matters related to the establishment of the outer limits of the continental shelf beyond 200 nautical miles will be made and thus the Arctic will be finally divided into spheres of influence.

On September 15, 2010, in Murmansk, the Russian Federation and Norway reached an agreement[98] and signed the bilateral treaty on maritime delimitation and cooperation in the Barents Sea and the Arctic Ocean. The agreement regulates the division of the disputed area of 175,000 km^2 which is rich in deposits. The work on the agreement took close to 40 years of negotiations. The peaceful negotiations were firmly based on principles of the international law of the sea which allowed overcoming the zero-sum attitude (or all or nothing) and helped to focus on negotiations leading to a solution satisfying both sides. The agreement clearly shows that in the long perspective the countries vitally interested and wishing to achieve a lasting agreement can actually generate significant added value. This value is of tremendous importance not only to the stakeholders but above all to the entire international community. Such was the case of the Russian-Norwegian agreement on the maritime delimitation in the Barents Sea and the Arctic Ocean. "The benefits for each country due to striking this compromise already surpass potential profits in the future which would have resulted from attempts of securing a larger territory entirely for one side" (Wspólne wyzwania 2010). Although cooperation is not always easy, achieving this agreement opened the doors for collaboration in other fields: scientific cooperation, the development of common standards for maritime safety, environmental protection, and even the cooperation on the exploitation of raw materials. The Russian side highly respects the competence of the Norwegian oil and gas industry today. "In the oil sector, Norway has developed unique competency; therefore, we positively perceive further potential cooperation

[97]The Arctic Frontiers is an international arena addressing development in the Arctic. The forum supports open and independent dialogue between countries, building cooperation with the indigenous peoples of the High North, and implementation of new solutions to protect the delicate Arctic environment and ecosystems.

[98]The agreement facilitates off shore licensing in the formerly disputed area, which in turn allowed for the cooperation of energy companies there.

of Russian and Norwegian companies in joint oil projects not only in Russia and Norway but also in other parts of the world. We sincerely hope that in the near future such a development will take place because it is of great significance."[99]

Norway and Russia, due to their geographical location, geological conditions and the worldwide growing demand for energy seem to be heading towards a special form of cooperation and perhaps even towards a new kind of "alliance" in the North. Norwegians are a nearly perfect candidate because they share a common geographical border with Russia and have the necessary technology needed in the Northern territories. In practice, they also are deeply interested in the establishment of privileged energy partnerships and becoming Russia's priority partner in the North. There exist also plans of developing a Norwegian-Russian agreement on managing the Northern Regions. Although the Norwegians are aware of further competition to define the international position of a country by means of energy, they believe it not to be an obstacle in the Norwegian development of energy cooperation. Is Norway, however, fully aware of the potential reactions of political nature? Today, one may surmise that the prospects of new benefits from energy resources in the North (regardless of their state ownership) may somewhat blur the complexity of the political picture for the Norwegian business leaders as well as the politicians.

In today's political climate in the Arctic, cooperation rules over conflict or even aggressive competition. In the long run, however, maritime borders may pose problems difficult to solve. In addition, there are also risks connected with the increasing international tension brought about by environmental, social and economic changes in the region.

On the one hand, it would appear that "it is impossible to negate the tremendously important role played by the non-governmental institutions in mitigating potential tensions or the reasonable approach of the representatives of the Arctic states for whom a war would be the worst possible solution as it would involve tremendous political, economic and social cost" (Bafia et al. 2012). On the other hand, however, it is always advisable to keep in mind that the states are sovereign entities and as such do not have to follow any recommendations made by those institutions. In great majority, these are simply declarations stating the will to cooperate.

Still some time has to pass before the High North becomes a convenient and fully safe new shipping route and the world center of oil and gas. It is very difficult to predict how long it will take and if it will actually happen. However, one could say that before the race for the North Pole becomes truly hot, the states of the region have a duty to use the remaining time to reassess and strengthen the legal governance framework in the Arctic.

One can only hope that in spite of the high stakes, reason and good will triumph again, as they have so far.

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[99]The statement by Sergei Oganesyan, head of the Russian Federal Energy Agency; quoted after: *Aftenposten*, January 26, 2007. It should be added that Norsk Hydro sought exploration licenses in Libya together with Gazprom. Norway's Hydro and Russia's Lukoil have joined to explore oil fields in Iran. Gazprom, Statoil and Norsk Hydro signed a cooperation agreement at the end of 2006 on the prospecting, development and exploration of offshore fields in the Barents Sea.

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Chapter 9
Conclusion

Abstract The Arctic is undergoing a significant transformation caused mostly by the climate change and globalization. An additional and very significant consequence of the biophysical changes is the increased interest in the Arctic by global players. To put it more generally, it could be stated that the growing interest is generated by new economic opportunities related to commercial maritime transport, development of oil and gas deposits, mining, fisheries, and tourism. The natural results are closer economic and geopolitical relations between the Arctic and the rest of the world. The Arctic is no longer an isolated or a distant region. Increased global interest is a potential source of conflicts between the need for discoveries and exploitation, and the requirements of protection.

Keywords Significant transformation · Region of change · Co-existence · Knowledge · Cooperation

We often say that the Arctic is unique, which it is, but we mean it in relation to its physical characteristics. However, from the point of view of generally understood social science, it is also exceptional because of its inimitable political, economic and social system.

The end of the Cold War brought a change in the perception of the Northern Areas. The previous unilateral focus on the security policy has been currently substituted by the issues of security and sovereignty but enlarged by the perspective of economic development, environment protection, life conditions, and cultural cooperation.

Throughout over 100 years, the average temperature of our globe has increased by 0.8 °C but the Arctic has experienced the growth three times higher. And it is exactly because the warming has melted some of its white cap of ice.[1] In September of last year, the ice sheet on the Arctic Ocean was the smallest in the history of

[1]The latest NASA research shows that 2012 was the ninth hottest year in the history of regular global measuring of temperature, i.e. since 1880 r. The temperature of the Earth in 2012 stood at 14.6 °C and was higher by 0.6° than the average in the years 1951–80. What is probably most significant, all the years of the 21st century were warmer than the average and belong to the 14 hottest years in recorded history of measurements. The Earth is getting warmer instead of cooling down.

R.M. Czarny, *The High North*, DOI 10.1007/978-3-319-21662-1_9

satellite measurements. The prognoses say that in the future the temperature in the High North will be rising three times more quickly than the average for the whole globe. It only follows that the North Pole will keep melting even quicker and warm our planet even more rapidly.[2]

It is obvious, therefore, that the Arctic is undergoing a significant transformation caused mostly by the climate change[3] and globalization.

A statement that the climate has exerted strong influence on the diversity of the natural environment in the High North seems nearly trivial and clearly obvious. Nevertheless, it holds true and the region can boast not only of unique nature but demands definitely a special treatment. It is particularly justified when taking into account such important transformations as the rapidly changing maritime transport and offshore extraction of crude oil and natural gas. Moreover, the melting of sea ice sheet means in essence greater accessibility to natural resources and opening up of new sea routes. Those changes seem to bring tremendous opportunities but they also require extreme caution in undertaking actions on a regional, national, and international scene. That pertains to both the Arctic and non-Arctic states. The point is to establish and keep the right balance in the process of exploiting the sea natural resources of the region.

An additional and very significant consequence of the biophysical changes is the increased interest in the Arctic by global players. The attentiveness of China and India may be perceived in a large international context, while the growing but somewhat late engagement of the EU since 2008 maybe understood as an attempt to mark its presence and even as trying to include the Arctic into the broader European space.[4] The new structure of political relations is exemplified by the fact that Denmark, Finland and Sweden are members of the EE and the Arctic Council, and Germany, France, Holland, Great Britain, Spain, Poland, and Italy (the last one since May 2013)[5] have observer status in the Council. Many other states and organizations[6] also declare readiness "to participate in the sustainable development of the huge resources in the Arctic Region as well as in other projects related to the environment in the North."[7]

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[2]The melting Greenland will also certainly raise the level of the sea.

[3]The surface air temperatures are rising rapidly in many parts of the Arctic, the sea-ice is retreating and its thickness declining, the thickness of the active layer of permafrost is increasing, snow conditions are changing, and glaciers are receding. These processes trigger a response mechanism in the form of albedo reduction of the Arctic Ocean (albedo is the ratio of radiation reflected from a surface to the total amount of radiation incident upon it) and changes in tundra ecosystems that in turn affect the Earth's climate system as a whole, at the same time further accelerating changes in the Arctic itself.

[4]In the study made by the High Representative of EU for joint foreign and security policy, J. Solana, it is said that melting of the ice sheet will in the future open new maritime routes and facilitate extraction of deposits in the Arctic. See Domisiewicz (2008).

[5]The decision of the Arctic Council was made in Kiruna on May 15, 2013.

[6]In February 2009 a new interested party declared itself officially—NATO.

[7]As indicated in *NRK Nordnytt*, January 27, 2008.

To put it more generally, it could be stated that the growing interest is generated by new economic opportunities related to commercial maritime transport, development of oil and gas deposits, mining, fisheries, and tourism. The natural results are closer economic and geopolitical relations between the Arctic and the rest of the world. Many observers perceive this development as a source of growing conflict because of competition related to control over the natural resources of the region. Others are very concerned about the consequences of the increasing integration of the Arctic with the global system of advanced industrialized society whose current lifestyle cannot possibly be considered sustainable. It seems also quite clear that the Arctic cannot follow its own original way of development which would be independent from the global power system.

In view of the above, it is virtually impossible to prognosticate the pace and trajectory of such a development. "Although journalistic depictions of the spread of a gold rush mentality and the prospect of armed clashes in the Arctic are highly exaggerated, worldwide interest in the Arctic has reached unprecedented levels" (Arctic Governance Project 2010). Furthermore, many facts show that the Arctic of today is at a turning point or in the transition period, as often presented by scientists. According to them, the fundamental challenges regarding extraction of deposits are today's technological and logistical obstacles and deficiencies which, once overcome, together with the intensification of extractive activities, will still increase the risk of ecological disasters and may endanger the life conditions of the indigenous peoples. In order to prevent it, close cooperation is necessary in research projects, in supervising extraction activities, and technological and financial collaboration is required. The engagement of the international business, NGOs, local social organizations, academia and experts will prove indispensable in the matter.

Prior to increased activities in the Arctic, all debatable or still unclear legal issues should be settled, regarding economic zones or the rights to the continental shelf. The practice shows that the perspective of final and binding delimitation of the Arctic shelf is still a remote one. In accordance with Article 83 of the United Nations Convention on the Law of the Sea, the delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution.[8] In my opinion, an alternative to the long-term process of achieving "an equitable solution" could be the proposal made by the EU and keeping part of the Arctic Ocean and the North Pole as open sea with the seabed of the status of common heritage of all mankind. This could be a starting point for regulating the Arctic matters (including navigation) through the form of a multilateral international agreement, following the template of the Antarctic Treaty. The upcoming few years will show whether such a solution could be desired as the least contentious and whether it could secure the interests of all involved parties in accordance with the international law on the

[8]It should be noted that when joining the convention, Russia and Canada excluded judicial proceeding in settling disputes regarding delimitation.

sea, and at the same time possibly convince part of the US Senate to ratify the United States joining the Convention. Reaching such an agreement would then open the door for various sorts of cooperation, starting with scientific and all the way to setting joint standards of maritime safety and environment protection, which would unquestionably benefit the societies of all the countries.

Such a permanent solution concerning at least some of the issues mentioned before requires an adjudication of an institution whose verdict would be accepted by all the interested parties. Some principles of governance in the Arctic and among the Arctic states need to be developed very soon, to mention only the aspects of infrastructure, patrolling, rescue operations, exploitation, and transport.[9] In order for the governance to be effective, the introduction of permanent principles is indispensable and they must be acceptable to all partners. The structure of a governing body still remains an open issue: Should it be a national or an international body? Should it be composed of regional players only? Or should it include all interested international partners? The last would call for the necessity of striking at least a relative power balance.[10]

Another problem may be posed not only by the cooperation itself (there is enough space here for separate states, and international structures like NATO, EU, the Arctic Council, etc.) or its field (for example, fisheries, navigation), but the very coordination of that collaboration. Who would be responsible for supervising such a diversified international activity in the Arctic: Would it be the Nordic states (whose interest in the region is a priority), the international financial institutions whose engagement in the region, according to, for example, prof. Alyson Bailes,[11] keeps growing together with intensified business activities, or perhaps the UN (because of its vested interest in climate change issues)?

The military presence in the Arctic is also of great concern. The absolutely fundamental issue is whether it will have a symbolic dimension (capability, prestige, respect), or whether it will take on the function of a deterrent (blocking investment, restricting freedom of maritime transport)? Will it be geared towards cooperation or rather confrontation? Which countries will be involved and for what purposes it will be used in the first place (e.g. patrolling, logistics, coastal defense)? If we include NATO into that equation, it is unquestionable to me that the Treaty should in this context adapt to the challenges of this diversified and international cooperation by contributing its experience and expertise in rescue missions and shaping politics of security, as well as in the fields of humanitarian tasks, monitoring, and above all in building stability and trust. Its role could be extended to creating a template of prudent use of military force in the region and developing stable relations with Russia, and conducting with this country a dialogue concerning the Arctic.

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[9]See Ampleman (2013).

[10]This is also directly related to developing the principles of financing.

[11]Alyson Bailes, currently a visiting professor at the University of Iceland; previously a British diplomat, and former director of SIPRI.

The practice observed so far and the available evidence allow for making the above statement. In spite of emphasizing by Russia those elements of politics which certify to its military might and determination to defend the national interests, the experiences recorded so far in dealing with Russia (the Barents Sea issue and the Svalbard Archipelago) give no reason to fear a very pessimistic scenario. Therefore, in my opinion, Russia should be definitely included in the cooperation within the region in all possible aspects. A good starting point here could be a departure from the traditional and much stereotypical perception of Russia as part of the problem which ought to be replaced with the assumption that this country could be a part of the solution. It should be noted that regardless of its "warrior approach," Russia so far has proved to be in practice a very realistic partner in regional cooperation fora, and nothing or very little seems to point to the fact that it ever forgot that the Arctic is no *terra nullus* where everybody can do as they please.

In the High North, there already exist several mechanisms, starting with global solutions like the United Nations Convention on the Law of the Sea (UNCLOS) and the United Nations Framework Convention on Climate Change (UNFCCC), through regional agreements like those created by the Arctic Council and the Barents Euro-Arctic Council (BEAC), to those based on the guidelines for developing maritime transport under the auspices of the International Maritime Organization (IMO).

All of the above holds true, but we have no guarantees that, for example, the Northeast or the Northwest Passage climate changes will not contribute to the creation of a world community of crises and disasters, all the more as we know that disputes regarding maritime delimitations between countries are probably some of the most difficult ones to solve. The situation is further exacerbated by the fact that the system of treaties and institutions related to the Arctic is today not unlike a very complex puzzle. Wishing to examine the issue more optimistically, and probably realistically as well, one should emphasize the value of experience provided by the United Nations Convention on the Law of the Sea (UNCLOS) which gives a solid ground for solving problems which might arise in the Arctic due to climate change and will alter the shape of the Arctic Ocean. It was fully reflected in the joint Ilulissat Declaration[12] accepted in 2008 after a meeting of the five littoral states of the central Arctic Ocean: Denmark (by virtue of Greenland), Canada, Norway, Russia, and the Unites States. Those countries confirmed that due to the climate change and melting of the ice sheet, there appeared new challenges to be met, and agreed that the Arctic Ocean should be subjected to the ruling of the international legislation as "… It has been estimated that 97 % of the resources under the Arctic Ocean are covered by this agreement and is to be found in the economic zones, which means that there is almost nothing left for others to share, should resources be discovered. In other words, there is not much left to disagree about. So, if you

[12]On the initiative of the Danish Minister of Foreign Affairs and the Prime Minister of Greenland, the five coastal countries of the Arctic Ocean agreed in the Ilulissat Declaration (concerning the Arctic Ocean) to refer to the law of the sea and negotiate all debatable issues in a peaceful way based on that legal structure.

should remember just one of my points here today, let it be this: The Arctic is not—and will not—be an area of conflict, no matter how much of the ice sheet should melt or how fast" (Ellemann 2010, p. 14).

Naturally, UNCLOS does not provide any ready-made or customized solutions to the problems which appear in the High North. Notwithstanding, it is a fundamental and indispensable reference point for the future negotiations and cooperation in the region which no more can be treated as virgin territory.

The Arctic is no longer an isolated or a distant region. It is a member of the global community, basically susceptible to global changes, and an area frequently in the very center of the world's attention. Increased global interest is a potential source of conflicts between the need for discoveries and exploitation, and the requirements of protection. All these parallel activities demand very efficient management. Natural resources grow bigger and therefore they should be managed by very careful stewardship, with bigger emphasis on sustainability and the principle of intergenerational justice.

This context calls for new data, knowledge and information necessary for a better understanding of interactions between different systems, as well as developing awareness about the current and potential changes in the future. After all, the objective of developing a strategy of adapting to climate change must be based on knowledge and experience of the extremely effective mechanisms which for centuries made survival possible in this region.[13] There is a necessity of a comprehensive approach to the issue which would include humans, the environment, economic development, politics and governance. The policy regarding the Northern Areas must be first of all based on the cooperation and dialogue with all Arctic states. This in turn calls for an immediate need of developing and accepting a joint plan of action which I would call a strategy for the High North. Although the framework, being developed today, is based mainly on the existing natural resources, such a foundation should include issues other than oil and gas only. It should include sustainable management of fish resources, a control system for the environment and conducting research concerning it, strengthening and enlarging cooperation with Russia, protection of the indigenous peoples, and many others. It is also of utmost importance that apart from enlarging the Northern Territories by land areas (until then only sea areas tended to be included), similarly to the Norwegian government, the issues need to be discussed at various fora like the EU, UN, NATO, regional organizations, and through consultations with the US and Canada.

One should not be deluded that the emerging conflicts in the North can be solved entirely through competent diplomacy. The progressive militarization, however, is also a mistaken strategy. The debate on the future developments in the North must not exclude the public opinion. Should the decisions be made in the form of administrative strategy, and without social acceptance, that strategy will simply fail and may turn into the unfortunate combination of the theme of climate change and

[13]It concerns, among others, employing locals on drilling rigs.

ingoist security rhetoric. In turn, sweeping the problem under the carpet will not stop the course of history or the global warming. It is not enough to talk only about a "strategically important area." A serious approach to climate change involves readiness for political debates, which are bound to be extremely difficult, and increased investments, including the military.

The activity in this vulnerable region has grown in the last decade much more rapidly than anyone expected. The more time is devoted to the portioning of the Arctic territories, the higher the tension will grow. Hence there is a necessity of investing into patient dialogue as a key ingredient in building mutual trust between partners on the global arena. Without the indispensable trust which is capable of predicting and lowering future tensions, the parties will be unable to engage in creative discussions obligatory in solving problems. Moreover, it is a unique chance to design and build mechanisms for promoting security in the region. Such fora for discussions and actions, where experts and politicians from the eight Arctic states meet, are already in place: one is the Arctic Council and the other the Barents Euro-Arctic Council (BEAC). They are vital for building dialogue, trust and transforming knowledge of the region into political decisions. Strengthening and supporting these organizations seem to be a reasonable investment because cooperation is of utmost value. Admittedly, it requires good will, engagement and time, but the returns can bring the probability of developing joint solutions which in the long run will benefit all the involved parties.

What might the near future bring for the High North? Undoubtedly, climate is going to be the main factor shaping the policies of states and international organizations in the region. Climate change has already brought about rapidly growing interest in the Arctic among international players, mass media, academia, and the average citizens. So far, the region has never experienced that much attention and an open question remains: Is the phenomenon going to stay? It all depends whether climate change will progress and if the Arctic will continue growing warmer. The Arctic has the potential and opportunities to become the supplier for the whole world. With the disappearance of ice and appearance of the trees in Greenland, some countries will have new opportunities of economic expansion of which so far they could only dream. Should it happen, the Arctic may become one of the most important regions in the politics of the second half of the 21st century. However, one should not forget about the negative effects of such changes on the local environment and population. For them, such a vision of future may simply be devoid completely of anything even remotely attractive or desirable. In addition, the development of the international scene remains unknown. On the one hand, those opportunities and challenges may result in closer cooperation and developing joint methods of mitigating the changes. On the other, however, the issues of territorial divisions around the Pole and the unavoidable problems of environmental pollution might—although do not have to—lead to escalation of international tensions and competition for if not conflicts about the resources. Everything appears to depend on the pace of climate change and scenarios envisioned by people for the developments. One can only hope that whichever way it goes, states and international

organizations will be sufficiently prepared to make the possible negative impact as bearable as possible.

All that brings the ascertainment that the lead character of this work, the High North, is definitely a **region of change.** It is an area experiencing the consequences of the global processes and the implications resulting from the competition to gain access not only to the currently known but also to the future potential resources, where together with the global increase of expectations as regards the exploration and the intended exploitation of the natural resources of the Arctic on an industrial scale, the environmental and human cost will continue to grow as well. The key challenge is the possibility of combining economic activities with preserving environmental integrity. Only that particular arrangement will permit reaching the intended goal of sustainable economic and social development of the region. To reiterate the point, the essence of the plan can be described by two words: **co-existence** (of the ecological values and extractive activities) and **knowledge** (comprehensive knowledge of the region's specific nature, as well as of its needs and determinants, together with the awareness of the necessity of conducting further research).

Climate change is no longer an abstract idea but a reality creating completely novel challenges. These include issues of security and safety for separate countries but also for the natural environment and political and economic stability on a global scale. All these challenges must be met and they do not have to be approached as the necessary evil and the inherent price of change and progress. Perhaps they could be perceived as an opportunity for a better tomorrow which can prove on the example of the Arctic that the implementation of the international law may serve not only mutual interests but also peace.

It does sound like a dream. But only dreams combined with a bit of knowledge allow believing that the common challenges in the High North may bring into the international relations a new value based not on competition or conflict but on dialogue and effective cooperation. After all, **such should be the philosophy and logic of functioning between geography and politics**.

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