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List of Abbreviations

ACIA	Arctic Climate Impact Assessment
ACAP	Arctic Contaminants Action Program
AEPS	Arctic Environmental Protection Strategy
AHDR	Arctic Human Development Report
AMAP	Arctic Monitoring and Assessment Programme
b/d	Barrels per day
Bb/d	Billion barrels per day
Bboe	Billion barrels oil equivalent
Bcm	Billion cubic meters
CAFF	Conservation of Arctic Flora and Fauna
CLCS	Commission on the Limits of the Continental Shelf
ECOSOC	United Nations Economic and Social Council
EPPR	Emergency Prevention, Preparedness and Response Working Group
GDP	Gross Domestic Product
IASC	International Arctic Science Committee
IASSA	International Arctic Social Science Association
IEA	International Energy Agency
IPOs	Indigenous Peoples Organizations
MDGs	Millennium Development Goals
MMb/d	Million barrels per day
MMboe	Million barrels oil equivalent
OECD	Organization for Economic Cooperation and Development
PAME	Protection of the Arctic Marine Environment Working Group
SAO	Senior Arctic Official
SDWG	Sustainable Development Working Group
SKAD	Sociology of Knowledge Approach on Discourse
Tcm	Trillion cubic meters
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
WCED	United Nations World Commission on Environment and Development
WSSD	World Summit on Sustainable Development

1. Introduction

Only recently the Arctic region appeared on the global, public map. While the Arctic region has been inhabited for thousands of years, it did not play an important role neither in the public notion nor in international affairs. Even though the Arctic has already been an arena for military tension during the Cold War, and thus an important area for the Arctic states, only in the recent past the Arctic has become part of wide and public awareness. Several occasions can be seen as the source for this transition: In the discussions about climate change, the Arctic region has become one of the areas that are frequently used to illustrate the amplitude of human induced global warming. During the past decades the Arctic region has been twice as much affected by climate change than the global average, and models for the upcoming decades predict a similar development (Anisimov et al. 2007). As one of the consequences, the vast projected hydrocarbon resources of the region gained attention: Due to climate change and the retreat of Arctic sea ice, the Arctic maritime region became more easily accessible for potential resource extraction. Many regions on this planet that are rich in natural resources – but especially those rich in hydrocarbon resources (oil and natural gas) – have been regions of violent conflicts or serious inequalities, which is why they are often in the focus of public attention and why they are frequently discussed in media worldwide. Additionally, some scholars predicted that around or shortly after the turn of the millennium the production of oil would peak, which means that oil and natural gas production was expected to decline afterwards (*peak oil*). In this manner, the fossil resources that are expected in the Arctic started to gain attention in international energy politics. In 2008, a study that was carried out by the U.S. Geological Survey, highlighted that almost one third of the world's undiscovered natural gas as well as a significant share of the world's undiscovered oil resources would be located in the Circumpolar North (Bird et al. 2008). When in 2007 a Russian submarine placed the national flag of the Russian Federation on the sea floor at the North Pole, many media took up the story with their respective interpretations. With this incident, the attention to the Arctic region increased significantly. Many media thought to witness the take off of a new geopolitical conflict. However, in the view of many scholars, such a conflict does not take place (eg. Nicol and Heininen 2014, McDorman 2013).

Perhaps the interpretation of the start of a geopolitical conflict was due to the fact that the Arctic had not been heavily observed by the public before this incident. However, in the Arctic region, various intergovernmental bodies, which are assigned to coordinate cooperation amongst the Arctic states and regions, are in existence. Additionally, international laws (from treaties, agreements, or common law) exist as well. The most important regional governance network is the Arctic Council, which was established in 1996 as the successor organization of the Arctic Environmental Protection Strategy (AEPS). The Arctic Council is often considered as being an institution to promote peace and stability in the Circumpolar North. It is set up as a high-level intergovernmental forum of the eight Arctic states (Canada, Greenland and Faroe Islands/Kingdom of Denmark, Finland, Iceland, Norway, Russian Federation, Sweden, USA), which further includes civil society through involving Arctic indigenous peoples organizations (IPOs) as permanent participants. While the idea behind establishing the AEPS was clearly to monitor and find ways to reduce pollution and environmental degradation, in the course of time – but especially since the establishment of the Arctic Council – the agenda has changed. The discourse of sustainable development has taken over, and with the introduction of this new discourse, human development issues, with a focus on economic development, moved into the center of Arctic governance.

1.1. Research Interest

I have been interested in energy politics and hydrocarbon development in general for the past years, and, after having found the Arctic to be a region that has attracted a lot of my attention, I got motivated to take a closer look at related developments. In the majority of scientific literature I have studied, I found the Arctic Council analyzed or discussed as an environmental project; A notion that is understandable recalling its roots as the Arctic Environmental Protection Strategy. However, when studying recent documents generated in Arctic governance, as a student of development studies, I quickly got the impression that the Arctic Council would rather be interested in economic development (to the disadvantage of the environment). I felt that this interpretation is coming too short in currently available literature on Arctic governance, and decided, therefore, to contribute to this debate by dedicating my final thesis to this topic.

Since hydrocarbon technologies are non-renewable – and thus not sustainable – but instead contribute to different kinds of pollution, the recent Arctic Council's support for hydrocarbon activities strengthened my opinion. Even though the dangers of extracting hydrocarbons toward the ecosystem in the High North are well known and understood, the attempts of utilizing these resources are increasing. With this background, I decided to take a closer look at these developments. The most important questions that drove my research interest were: Has the increasing interest in utilizing the hydrocarbon resources in the Arctic become stronger than the original intention in Arctic governance, namely, to protect the Arctic environment and its inhabitants from pollution and environmental degradation? And if so, what are the major drivers behind such a shift, and in whose interest is such a shift?

My hypothesis is that the economic interests of the dominant powers within the Arctic states overtrumped the original idea of environmental protection in the Arctic region, as well as in Arctic governance. The capitalistic system is based on resources with a high energy density (such as fossil or nuclear energy carriers), which are necessary to maintain high economic growth rates. Thus, only if our society continues to use resources with high energy density – and which are usually not renewable – the prevailing classes can continue to stay in power. Due to the fact that non-renewable resources can become scarce, it is necessary for the current hegemony to find new resource deposits and to exploit them. After the Arctic Environmental Protection Strategy has already established a regional governance network, the dominant groups within the Arctic states took over this existing institution and transformed it into an agency of their (economic) interest. Through the original environmentalist agenda, the discourse of sustainable development proved to be a good vehicle to introduce an economic emphasis – by compromising environmental protection approaches – but not entirely giving it up. Instead, the reshaped agenda in Arctic governance promotes economic development, yet at the same time avoiding the most harmful environmental impacts that are caused by the resource exploitation. However, the discourse of sustainable development is an anthropocentric and human focused agenda. The interpretation that is used within Arctic governance is focused on an economic approach, within which the proclaimed discourse on sustainability can be questioned. To the author it appears that the sustainable development program in Arctic governance

favors the sustainability of the current power relations over a sustainable development for the Arctic inhabitants or the Arctic environment.

1.2. Choosing the Theoretical and Methodological Approach

One of the exciting issues I have often encountered when dealing with hydrocarbon activities is that, in many regards, there seems to be a discrepancy between common concepts and approaches toward hydrocarbon business. For example, from an economic point of view, hydrocarbons are one of the very few products that do not need to be advertised, but – the current technologies given – have a natural demand; Or the fact that national states have been privatizing corporations in many fields, but still often are keen to play a strong role in the hydrocarbon industries. Analyzing the hydrocarbon sector thus often led me to search for unorthodox, more flexible approaches and theories. Consequently, also for the theoretical approach for this thesis, I was struggling to find a proper framework, which would be flexible enough to help me either prove or disprove my hypothesis.

Two of the identity creating characteristics of the Arctic Council are that it is mainly perceived as a soft-law body, and that parties representing civil society are included. While the latter is generally becoming more frequent in recent years, most political theories lack the possibility to take this into account. Also soft-law institutions are difficult to study through many conventional theories of international affairs. When looking at approaches in political ecology, I found connections to the *politics of scale* as a promising way to prove my hypothesis, as it seemed flexible enough for analyzing the Arctic Council and the causes of the agenda shift that I have identified. Within the *scale debate* it is discussed that spatial, political levels are socially constructed, and that the production of spatial and political scales is full of conflicts: Different actors in political decision making disagree on the level (e.g. regional, national, international etc.) within which certain decisions should be carried out or promoted; These levels, furthermore can also be established on various spatial scales (e.g. Barents region, Arctic, globally etc.). Nicos Poulantzas' approach of the internationalization of states also seemed well-fitting into the problem at hand: He describes the state as a “material and institutional condensation of forces,” meaning that the societal and political forces are not the same because the prevailing forces within a state cannot simply use the state

apparatus for their own interests. Instead, there is a constant fight for the generalization of different interests within a state, which is also carried out for different perceptions of natural relationship with nature. Not only within nation states, but also on an international level, the various ideological approaches are struggling for their generalization, shaping international institutions and policies. Antonio Gramsci offers similar explanations on how hegemony is constructed: Groups with diverging interests need to build alliances in order to generalize their interests. After achieving hegemony, the dominated need to be included to a certain extent in order to maintain the prevailing power relations. To the different sets of the conflicting interests, diverging sets of societal relationship with nature are inherited.

Summed up this means that different groups are struggling on various levels to generalize their respective interests. While these interests could lie for example, in living close to nature with little human impact, or in building up a competitive society where economic development is most important, these different interests also involve diverging sets of societal relationship with nature. All groups are keen to generalize their interests in society in order to achieve the leadership of the hegemony. These class struggles are carried out on different political and societal levels as well as in alliances on different spatial scales.

Since Arctic governance is a rather new governance network, it will be interesting to analyze who the actors that try to dominate the regional discourse are, and thus attempt to generalize their interests on the Arctic's spatial and international level. Beside the theoretical approach, the sociology of knowledge approach to discourse will be used as the technical tool for the analysis needed for this paper. To study the prevailing and potential transitions of the dominating Arctic discourse, central documents of the Arctic Council as well as the national Arctic strategies of the Arctic states will be analyzed and compared to each other, and the identified dominating discourse(s) will be evaluated.

1.3. How to Read the Paper

The following chapter will elaborate the theoretical and methodological framework of this paper. After a brief introduction to the historic background and the roots of the scale debate, the reasons for choosing this framework will be explained, followed by an

introduction of the framework itself. Compared to other theories, the scale debate offers an additional spatial dimension and more flexibility regarding the different scales of politics. With politics of scale it is also possible to question power relations between various levels. We will enhance the scale debate with Gramsci's concept of hegemony and Poulantza's approach on the internationalization of state. To be able to utilize the theoretical framework, the sociology of knowledge approach to discourses shall be used to identify the prevailing discourse(s) in Arctic governance and to analyze the predominant dispositifs.

Chapter three will discuss governance in the Arctic, with a focus on the AEPS/Arctic Council network. First the Arctic and the spatial scope of the thesis will be defined, followed by a discussion of why and since when the Arctic plays a role in international affairs. After a brief historic background on Arctic politics and Arctic region building, the political development of the past decades will be in the spotlight: Since the Cold War, the Arctic region has changed from a region of military tension to a region where human development and environmental security is promoted. In addition, this chapter will explain why the AEPS/Arctic Council is perceived as the most important governance network in the Arctic. This section will also elaborate the structural framework of the Council (including soft law approaches and the Council's working groups) and the Council's objectives. We will see that with the establishment of the Arctic Council, the discourse of sustainable development took over the agenda. While the AEPS was mainly dedicated to environmental issues, the Arctic Council has a more anthropocentric focus, promoting economic development. A quantitative analysis of some of the central documents of the AEPS and Arctic Council will demonstrate this transition. Furthermore, also an analysis of the national Arctic strategies of the Arctic countries will support the hypothesis of the economic agenda. Finally, the exclusive round of the Arctic Five will be discussed, showing that the littoral states have developed their own, exclusive sub-forum.

The fourth chapter offers a case study on hydrocarbon development in the offshore High North: While combustion of fossil fuels is responsible for the major share of the anthropogenic part of climate change, it is also climate change that allows easier access to the vast hydrocarbon resources in the maritime Arctic. Oil and natural gas have been extracted in the Arctic since early in the 1920s, but in the past decades hydrocarbon

activities have increased significantly. A sub-chapter on hydrocarbon development will introduce past and current activities within the sovereign area of the different Arctic states. Since offshore hydrocarbon extraction is a rather new development, potential environmental impacts will be discussed; While hydrocarbon development does not contribute to environmental sustainability, some positive socio-economic influences can be noticed. However, as we will see, oil and natural gas extraction might bring benefits for some places, but yet likely not for the Arctic region in general. Consequently, the idea that hydrocarbon extraction might contribute to a sustainable development in the Arctic needs to be questioned.

This will be done in the fifth chapter. If hydrocarbon extraction does not lead to sustainable development, why is the discussed governance network attempting to increase hydrocarbon activities? We will see that fossil fuels are important for the capitalistic system to function. Only dense energy carriers allow for the high production rates necessary for strong and continuous economic growth. It is thus the current elites and dominating classes that have interest in exploiting these resources. To be able to carry this out in the Arctic, it was necessary to introduce their societal relationship with nature onto the scale of Arctic regional cooperation. Using the discourse of sustainable development, it was possible to cover support of economic development (including fossil resource exploitation) under the umbrella of an apparent environmentally friendly discourse. The concept of sustainable development is, however, a hybrid of the traditional development paradigm, which has taken off in the 1940s, and environmentalist approaches, that gained attention since the late 1960s. Because of the vagueness of the discourse, it can be implemented through diverging dispositifs; To Arctic governance a preponderant economic approach can be attested. By supporting hydrocarbon technologies, it favors, however, the dominant classes of the global capitalistic system rather than the inhabitants of the Arctic region. Thus, hydrocarbon development in the Arctic is rather a hegemonic project of the sovereigns than a contribution to the inhabitants and nature protection in the region.

2. Theoretical and Methodological Approaches

Debates in social sciences have been influenced and affected by various “turns” in the past, like the *cultural turn*. Another, rather recent and prominent turn is the *spatial turn*, which basically should introduce the dimension of place – or the scale of place, into the scientific debates (cf. Wissen 2008b: 73). The *scale debate* in *Radical Geography* started after 1990, and took root back in the 1980s, in essays by Peter Taylor, who added a vertical structure to Wallerstein's world system theory, and by Neil Smith, who used Taylor's scale concept (in his book “Uneven Development”) without, however, having such a clear hierarchy of the scales as Taylor did. Later, the scale debate got expanded to more levels and dimensions (or fields of politics), alongside which approaches from theories of states that have been added (Wissen 2008a: 13 f.). Nevertheless, the scale debate is not yet a ready made, coherent theoretical concept, but rather represents a set of “research heuristics” (Brand 2008: 169) to analyze the scalar dynamics of various institutions – governmental as well as non-governmental. One of the advantages of *politics of scale* is that it can also be used in an epistemic approach.

2.1. The Scale Debate

Through the establishment of an instrument on a new spacial-institutional scale, certain interest groups of dominating national states can increase their power internally as well as in relation to other states. Spatial and scale reorganization is not neutral, but a processes of regulation. The establishment or valorization of the level of a scale is thus a spatial dimension of social conflicts. Rescaling the spatial dimensions of an instrument is not an exclusive process to governmental institutions, but also commercial corporations or social movements can do so (Wissen 2008a).

Most theories of international relations, such as realism, neorealism, interdependency theory or regime theory see the national state as the central actor in international affairs; The national state, to them, is one which has sovereignty over its territory, whereas space is rather seen as a container or setting in which history takes place. In addition the rather recently evolved approach of multi-level-governance focuses on governmental

institutions, even though it also highlights the potential transfers of knowledge and competencies over different levels of governance – e.g. regional to national or supranational. However, multi-level-governance is mainly discussed within EU policies. Spatial levels remain static and given, and analyzing transformation processes of states, economies and societies is difficult. Utilizing the historic-materialistic state theory, the multi-level-governance approach can be expanded with the scale debate (Brand 2008: 170 ff.). In approaches with multi-level governance, the asymmetric relations between different fields of politics – e.g. trade and environment – are often blinded out. But nature and environmental transformations are integral parts of social and material production of scales. In comparison to multi-level governance, the scale debate is more flexible to the various levels of governance, and it offers more possibilities to analyze power relations – also between the different levels (Wissen 2008a: 16). The scale debate establishes a spatial dimension for current processes of transformation. Politics of scale offers a more differentiated analysis of processes of social reorganization than simplifying approaches of globalization because it also addresses the reorganization and re-territorialization of capitalistic spatiality and power relations (Köhler 2008: 208). The idea behind introducing the term *scale* was to visualize on which levels social and political interaction take place. Social relations, like specific forms of capital accumulation, governance, or protests are embedded in a vertical frame in spatial units (Brand 2008: 172 ff.).

The implications of scales are attempts within social scientific discourses, in order to analyze politic-economic transformations within neoliberal processes of globalization, and thus to analyze the transformations of statehood – and even more – states' spatial organization. Introducing the scale dimension allows to question the importance of national states in traditional theories but also the role of the national state in configuring power relations. The focus of the scale debate is based rather on the dynamics and the role of certain forces in transformation processes than only on the results of reorganization. In the scale debate, in the center of discussions on reorganization are questions of statehood and capitalistic development (Köhler 2008: 208). Central conclusions of the scale debate are targeting new definitions of concepts on scale and spatial levels within social sciences. Köhler argues, that the scale debate can be characterized by four main assumptions: Scales don't exist in a predefined manner but are socially constructed or produced; Scales are thus not static but vary historically; The

importance of scales is based on the relations of their scalar dimension; And finally, the processes of re-dimensioning is politically very controversial (Köhler 2008: 209).

Rescaling Governance: Materialization of Interests

Brand argues that the generalization of diverging interests, which makes or designs a state, is carried out in and through numerous spatial levels. Due to the different interests of certain groups within a state – or across levels – compromises need to be made, which eventually materialize on a certain level and concentrate power. This can happen, for example, within corporations (e.g. defining a corporate's strategy), in civil-societal organizations, or simply in different views on life. In the sphere of political institutions, the numerous interests are mainly compressed into the state and its various institutions, dealing with all different kinds of fields of politics. However, on which spatial scale or level this is to occur remains open. Thus, using the scale debate allows to question and analyze how problems are constructed hegemonically: Whose problems are they? What powers are behind them? And how selective are they? The problematization has a perspective which is critical to power relations, and it questions why and how political and social institutions act along certain scales. Looking at the state in this way, it shows that governmental institutions can reproduce social and political relations. Furthermore, dominant classes and powers are trying to generalize their interests and to utilize spatial strategies (Brand 2008).

The politics of scale is not only a question of changing power relations, but also a question of political institutionalization of power within the state as well as internationally, and thus asks about the reproduction of hegemonic relations. In order to define hegemony, the concept Antonio Gramsci put on the table is quite useful for our discussion. Even though his concept of hegemony was based on an approach of analysis on the level of national states, it fits very well into the scale debate and can be expanded to an international level (Ibid.: 178). Gramsci has defined political hegemony as an attempt of economic expansion, which he classified as having three different phases: First, members of a group (or a class) discover their common interests (which are of economic nature and egoistic) based on their rank in production, and start to organize themselves. In a second phase, the dominating powers establish alliances to generalize their interests, while they are also willing to make small sacrifices in order to find compromises amongst the dominating groups. In the third phase, these sacrifices have

already been made, and the alliance of power is able to implement its program – or to materialize it – into the form of state (cf. QDC 13: 1560 ff.).

The societal hegemony that has been achieved in the second phase is defended with force in the third phase, in order to assure the prevalence of the hegemony and the established power relations (Ibid.). A hegemonic group needs to lead and to rule the dominated; While leadership can be attained by advantages in knowledge, the process of domination also includes force (Neubert 2001: 66 f.). An ethical dimension of hegemony is that knowledge, including knowledge of technology or of its use, has to be shared with allied groups, while the dominated could be excluded or provided only with selective information. To sustain hegemony, at least some of the interests of the other groups need to be represented. Since interests of groups and members of groups can change, hegemony as well as sustaining power is not static but a continuous process, and permanently needs to be rebuilt. Gramsci's concept of hegemony, the dichotomy of leadership and domination, is a sophisticated concept of governance, since it is also inclusive toward the dominated groups. Leading in the hegemonic phase is a multi-scalar process; The internationalization of states is such a process, carried out over political-institutional levels (cf. Brand 2008: 176 ff.).

Despite the fact, that Gramsci's concept of hegemony was built in his analysis of national states, it can also be implemented on the level of an international scale: The first phase, in which a group with common interests forms and starts to organize its common interests, can also be found on transnational levels (Ibid.). As an example, states with a common interest in a particular region (such as the Arctic), can coordinate their interests on a newly established – or reorganized – scale, by also highlighting the spatial dimension of their common interest. Also the second phase, the attempt of generalizing their common interests, can be found on a transnational level: For example, the common economic interest of the states' elites in stimulating economic development with or through resource extraction (such as the exploitation of hydrocarbons) can be achieved more easily through cooperation on a transnational scale. The question of the economic development, or the generalization of a development plan, also involves different concepts of societal relationship with nature. Since certain technologies that are connected with certain economic developments have their respective impacts on nature, the question of what is accepted is a question that needs to be negotiated amongst the various actors: “The continuous reorganisation of spatial scales is an

integral part of social strategies to combat and defend control over limited resources and/or a struggle for empowerment” (Erik Swyngedouw as quoted in Köhler 2008: 218). Thus, changes and transformations about the access to nature and natural resources are intended, and they shape the decisions of who will have access to what kind of nature (ibid.).

Thus, in capitalistic societies, the politics of scale also takes place on international levels and is embedded in international political, economic, and cultural constellations. These scales are expressions of historical as well as present social discourses. In the scale debate, spatial spheres of political activities are not static, and the functions of a state are embedded in strategies, conflicts, and compromises: Nicos Poulantzas describes these relations with the metaphor that a state is a “material and institutional condensation of power relations” – a metaphor that can also be used on a multi-scalar level. Brand thus defines international political institutions (borrowing terminology from mathematics) as a “material and institutional condensation of power second-order” (Brand 2008: 180; own translation). Since states are not homogeneous constructs, the materialization of state apparatuses is conflictual and filled with selective interests. Consequently, state apparatuses are not necessarily interested in solving problems to the benefit of the whole society. Nevertheless, maintaining a hegemony – even in cooperation with several states as allies against the dominated – is not possible without conflicts. It can thus neither be taken granted that interests of the hegemonic groups can be generalized (for example, if there is substantial resistance against the interests of the dominating class), nor can such a processes be controlled. Instead, such processes are always subject to various political dynamics (Ibid.).

2.2. Sociology of Knowledge Approach to Discourse

To prove the hypothesis of this paper, a discourse analysis will best serve as the methodological approach. However, it should be noted that a discourse analysis is a hermeneutic process, and because of its empiric-methodological approach, it also is a process of interpretation by the author (cf. Keller 2011: 11 and 76 f.). Nevertheless, a “discourse analysis provides the theoretical and methodological tool for a well-founded critical approach to the study of social problems, power and inequality” (Van Dijk 1997 as quoted in Keller 2011: 21). While analyzing discourses focuses on the language, the

language is also a materialization of ideology; i.e. a discourse refers to the ideological part of language use (Ibid.: 25).

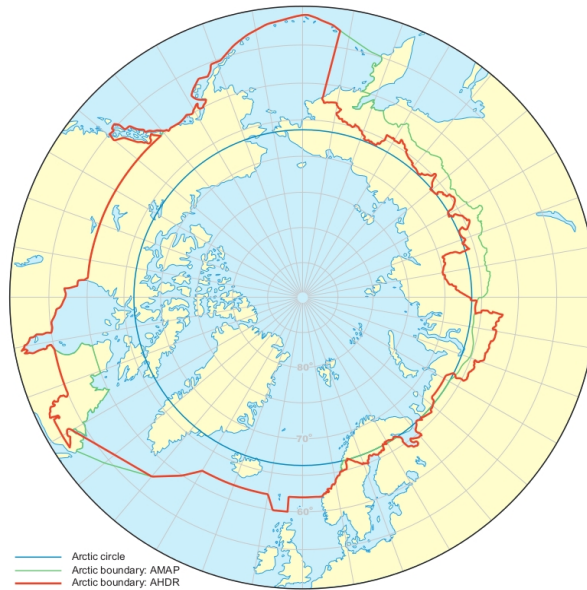
To prove the hypothesis of this paper, it is important to look at the discourses in Arctic governance because societal actors that promote certain discourses have materialized their interests into these discourses. Alliances are made to formulate and to strengthen discourses, in order to be able to generalize certain interests. In the process of shaping discourses in order to materialize them, unequally distributed resources amongst the societal actors need to be expected. The generalization of a discourse can support the reproduction of the discourse (which can be manifested for example in law or as guidelines) and contribute to the manifestation of power relations. Sociology of Knowledge Approach to Discourses (SKAD) is interested in such statements and practices which can become manifested in the societal generalization of a discourse. Discourses are institutionalized, materialized and reproduced in the form of dispositifs, in which they can unfold constitutional forces of power. The analysis of the discourses is focused on the constructed contents, i.e. the constructed order of knowledge (Keller 2011: 67 ff.). As knowledge constitutes one of the dimensions of hegemony and of maintaining hegemony, constructing knowledge and setting the discourse also contributes to the creation or maintenance of power relations (cf. Brand 2008: 176 ff.). In this paper the SKAD will be utilized, which should serve the purpose of analyzing the relationship between knowledge and conditions in society, though in particular of social actors like institutions and organizations, on various levels and scales (cf. Keller 2011: 59). It will and thus serve to analyze the societal construction of reality in Arctic governance.

It is impossible to analyze all reports and documents available, which is why the focus need to be on documents that represent the discourse in Arctic governance exemplarily. This allows the usage of approaches from corpus linguistic discourse perspectives (cf. Ibid.: 67). Corpus linguistic is an approach from the field of studies of language. It is useful for quantitative studies of big amounts of texts (text corpora) assembled to specific criteria, like thematic or lexical criteria. The chosen corpus can then be searched for statistical relations or dispersions of words or phrases, in order to gain information on the alteration of the discourse over time (Ibid.: 23 ff.). Thus, text corpora will be assembled according to the research question, and an analysis of particular data

that is relevant to the thesis will be carried out. For this purpose, and because the ministerial meetings are the main decision making body (see chapter 3.3.2) within the governance network under investigation, the final reports of the ministerial meetings from the AEPS and the Arctic Council have been chosen as being most representative. Since texts or practices of discourses are not understood as simple objects but rather as material manifestations of social orders of knowledge, additionally to the quantification, a qualitative analysis of the data will be carried out. However, a qualitative analysis is inappropriate for large text corpora but rather has to focus on small selections of chosen text (Keller 2011: 78 f.), which will be extracted from the ministerial meeting reports and selected according to the research question.

Furthermore, the national Arctic strategies, as compendiums of the respective national states' interests in the Arctic, will be analyzed, in order to see if the various countries have diverging official positions on their northern interest. Even though the strategies are out of the range of the above mentioned text corpora, the analysis of the national Arctic positions should contribute to a better understanding of the main actors in the discourse setting. This point therefore is important since discourses are shaped by diverging interests and resource allocations (cf. Ibid.: 66 f.).

3. Governance in the Arctic: From AEPS to the Arctic Council. How Much Arctic Environmental Protection?



*Figure 1: Map of Arctic boundaries.
Illustration by Winfried Dallmann, Norwegian Polar Institute.
Source: Young and Einarsson 2004: 18.*

The Arctic is a socially constructed region. Depending on one's approach, different definitions for the Arctic can be used. In natural sciences, the southern boundaries of the Arctic often refer to biophysical features, such as the 10°C July isotherm,¹ or the northern tree line. Additionally, also the Arctic Circle allows a

delineation that can be used to define the Arctic.² However, these approaches have little to offer for cultural, economic or political analyses. Thus, when talking about the Arctic in this paper, it will mostly be referred to the delineation that has been defined and used in the Arctic Human Development Report (Figure 1), which is based on jurisdictional or administrative boundaries, as well as on the availability of comparable data. Deviations from this definition might occur when reports or data are quoted that are based on other definitions for the Arctic, e.g. data from climate studies.

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- 1 "Climatically, the Arctic is often defined as the area north of the 10°C July isotherm, i.e. north of the line or region which has a mean July temperature of 10 °C." (AMAP 1997: 6)
 - 2 The Arctic Circle refers to the southernmost latitude in the northern hemisphere (currently approximately 66.56° degrees north) where the sun remains continuously below or above the horizon for 24 hours at the December- or June solstice.

There are various terms available to describe the world's northernmost region. While they can be used with different meanings and might be encoded with diverging connotations for some readers, in this paper the terms *Arctic*, *Circumpolar North*, and *High North* will be used synonymously.

3.1. Putting the Arctic on the Map

Only in the course of the past decades the Arctic became a region of considerable public interest, and finally gained wide attention by the global media. Melting sea ice as a consequence of climate change, shipping in the Northwest Passage and on the Northeastern Sea Route, and the potential exploitation of hydrocarbon resources in the Arctic sea have all attracted many new spectators. Given the economic importance of the vast oil and natural gas resources in the Arctic and the fact that access to hydrocarbon resources has already caused numerous violent conflicts in the past, it is not very surprising that the media saw the beginning of an upcoming geopolitical conflict after a submarine of the Russian Federation planted their national flag on the seabed at the North Pole in summer 2007. Generally, in the past decades, a lot of attention has been paid to energy security, since “securing strategic shares on the global energy markets has become one of the top priorities of foreign and security policy” (Heininen 2010: 25). To guarantee access to these resources, states are even willing to use militaristic force. Nonetheless, those living in the North tend to see the region as one with common challenges and cooperative ties. Besides numerous international agreements that play an important role, also the Arctic Council serves as an institution that promotes peace and stability in the region (cf. Nicol and Heininen 2014).

From a legal perspective, there are no significant land disputes in the Arctic, since “almost all territorial claims have been settled in the area” (Franckx 2011: 397). The delineation of the maritime area however is still contested. Nevertheless, any claims or potential sovereignty disputes in the marine area are handled under the UNCLOS – the United Nations Convention on the Law of the Sea (Elferink 2011), which for many scholars is seen as a sufficient framework – even under the changing climatic conditions.³ Responsible for any claims about the delineation of the outer continental

3 The UNCLOS contains only one Article (Art. 234) that is particularly relevant to the Arctic, since it deals with ice covered waters. However, if the Arctic should become ice free, it still would be subject to the UNCLOS framework. (cf. Franckx 2011)

shelves is the Commission on the Limits of the Continental Shelf (CLCS), which is part of the UNCLOS. To claim an area, a state must bring scientific prove for the extension of the Continental Shelf. The Russian submarine that gathered so much media attention was collecting geological samples for this purpose (Elferink 2011: 123, also Nicol and Heininen 2014: 2). Since the Arctic states – with the exception of the USA – are all party to the UNCLOS, this expedition can be seen as a standard procedure under international law. Even though the USA have not ratified the Convention, they are still tied to the UNCLOS decisions because the UNCLOS is institutionalized customary law, to which also the USA feel pledged, as they have announced at several occasions: One such instance took place in Ilulissat in 2008, when the five Arctic littoral states jointly declared, that all five participants of the meeting, including the USA, emphasize the importance and acceptance of the UNCLOS for the Arctic area (A5 2008; on Arctic Five see also chapter 3.5). Nevertheless, and beside the fact that the Arctic states accept dispute settlement under prevailing international law, the flag incident brought global public attention to the vast amounts of natural resources in the High North, with special attention to the oil and natural gas deposits. However, the Arctic states are not only tied to international law and take part in the international community, but also have developed regional intergovernmental bodies, to cooperate in and coordinate policy making in the Arctic.

3.2. Emergence of Arctic Governance

In recent years, the term *governance* has become quite popular. It “can be understood as a process in which political power is exercised by different players with due consideration to the principles of legitimacy, accountability and transparency” (Loukacheva 2013: 125). It is a reaction to the acknowledgment of the fact that the national states have become increasingly internationalized, but it also highlights the notion that political institutions are supposed to regulate and control – or govern – and to manage the interdependencies of various actors, not just states (Brand 2008: 170). In the theory of international relations, the term governance describes the management of international affairs in the absence of a world government.⁴ In state theories, governance stands for the erosion of homogeneous governing, a decentralization of government, and

⁴ Due to the absence of a world government, the term *global governance* became commonly used for the management of international affairs. (Picotto 2007: 251)

the transformation toward the principle: “to govern without a government” (Picotto 2007: 251). In the past decades, governing became more complex, and national legislations, in comparison to the past, more fragmented. To deal with the increasing complexity and diversity, networks of regulatory cooperation, coordination, and harmonization arose. These networks are formed not only on international, but also on supranational or infranational scale (Ibid.). Transnational governance structures are also a response to globalization: Intergovernmental organizations can be seen as a process of political globalization, and intergovernmental or transnational agencies are part of the political co-ordination amongst governments (Heininen and Southcott 2010: 9).

Picotto elaborates that in traditional (“classic-liberal”) systems, international law is binding for national states, while, in comparison, the local or national law is binding for natural and legal persons within a national state. Network arrangements in governance (“post-liberal”) systems overlap and penetrate the traditional, normative systems. Regulations are seldom final because their validity can be contested (especially by powerful actors) in appeals to other systems. The institutional fragmentation of governance also allows to shield parts of decision making from particular interests, or from short-term consideration, such as interests in regard to governmental election processes. Thus, governance can also be seen as a reaction to the transitions within recent political processes. However, linked governance intercepts channels of traditional legal systems, which ideally would have been anchored in constitutional setups. Nevertheless, it does not contradict current democratic structures, but rather supplements them with new forms of democratic coordination (Picotto 2007).

3.2.1. History of Arctic Politics

The Arctic can be rather “understood as a concept with particular connotations than as an objective understanding of a certain land area” (Keskitalo 2004: 3). In terms of identity, the Arctic is still a relatively young region that until recently has only been seen as a new frontier. In world affairs, the Arctic has rarely been mentioned. However, the region has become integrated into the world economy (Heininen and Southcott 2010: 1 f.). Through up to the twentieth century (and partly to the present), the North was understood as an environmental, largely uninhabited entity, in which man struggles against nature (Ibid.). However, the Arctic has been home to indigenous peoples since thousands of years ago, and the Arctic's inhabitants have maintained a sustainable

lifestyle for almost as long. While for many generations the peoples of the North had little contact to societies in or from the South, the southern societies expanded gradually into the northern, circumpolar world.⁵ Beside opportunities for trade, the southern interest in the region was also driven by a search for undeveloped resource deposits (Mease and Coates n.d.: 4). The Arctic's indigenous peoples have very similar histories in relation to their experiences with colonialism. They have suffered from the encounters with the southerners, who have seen the Circumpolar North as wilderness area or wasteland and a vast storehouse of natural resources. The attitudes of the non-natives to the environment of the Arctic has been influenced by the idea that the Arctic would be a frontier region. This, from the indigenous peoples' diverging societal relationship with nature has shaped the course of economic development as well as the post-contact history of the first natives (Nuttall 2002: 4 f.).

Exploration and exploitation of natural resources began in the sixteenth century, though especially from the nineteenth century on, the northern indigenous peoples have had extensive contacts with the outsiders due to their resource extractive activities. The northern societies have frequently been seen as internal economic colonies of the Arctic nation states (Heininen and Southcott 2010: 8). Colonization and settlement of the Arctic often took place with resource extraction in mind. The Circumpolar North has played a significant role in the (economic) development of the nation states with Arctic territory. Especially in the aftermath of the Second World War, mining activities in the North – including the extraction of hydrocarbons – expanded significantly (Nuttall 2002: 4).

During the Second World War, the Arctic region moved into the focus of geopolitical tension: In this period, the Arctic became a militarized region, which was “characterized by hot warfare and an arms race and included many deadly conflicts in the region” (Heininen 2010: 228) after state sovereignty issues finally reached the northernmost parts of the world. Also after the Second World War, the Arctic remained a geopolitical hot spot because of the growing military tension during the Cold War period. The militarization of the region, as well as a growing industrialization, lead to a population increase and to the establishment of new towns and cities. The northern regions started

5 For example, the Norse occupied Iceland around 870, and reached further to Greenland, about 1000 years ago. The Dens, Finns, Norwegians and the Swedes were looking for trading opportunities in the North as early as in the 9th century. In Russia, trade activities started in the 14th century and later, and in North America it took until the 17th century to do so. (Mease and Coates n.d.: 4)

to become important resource areas for the national states with Arctic territories (Ibid.: 228 f.). Up to the present, except for the case of Greenland, indigenous people have become minorities in the Circumpolar North. Despite the growing population, the northern states continued to perceive the Arctic as a peripheral region (Nuttall 2002: 5 f.) for resource exploitation and as an military arena. The military presence in the Arctic was part of the traditional security concept, which was ruled by a territorial notion, including nationalistic and militaristic aspects (Heininen 2013a: 38), and it aimed to defend the territorial sovereignty of the nation states.

At the end of the Cold War and the fall the Soviet Union, circumpolar geopolitics underwent a significant change, away from military tension and confrontation, and toward international cooperation and less military tension. Since the end of the Soviet Union, security concepts have broadened and increasingly included views of environmental, social, and economic aspects. “The definition of security was thus exposed and widened toward a more human oriented approach” (Heininen 2010: 223). Khagram et al. (2003: 291 f.) have defined 4 key elements that distinguish between traditional security and human security. First, there is a difference in what or who is to be secured. Here we find the distinction between territorially bound and political-administrative units versus human beings as individuals. The second element is the expansion of what security means, from a focus of survival of states to survival and dignity of human beings. The third key element is that a state's security deals solely with “freedom from fear,” while human security additionally includes “freedom from want.” And Fourth, the promotion and protection of human rights trump states' territorial sovereignty. The threats to human security are more numerous and complex than the traditional or state security. Khagram et al. summarize that “[h]uman security focuses on ensuring the survival and dignity of human beings through freedom from fear and freedom from want,” and they furthermore deliver a definition of human development, which “is understood as the continuing expansion of human freedom/human flourishing beyond these 'freedom froms’” (Ibid.: 292). Such a comprehensive security concept centers on a human being's life and should ensure good health, social and economic well-being, as well as a peaceful live without war or violence (Heininen 2013a: 38). This new notion was part of the post-colonial era, which also significantly affected the Arctic's indigenous people, who consequently also got a stronger voice – both in the Arctic and globally.

Parallel to the emergence of human security also environmental security gained importance. Although it emphasizes nature, it is strongly interconnected with human security. Even though environmental security was included in the security concept, at least at the beginning the output site of security remained the same, and the state continued to be the main actor that needed to be secured from environmental threats (Khagram et al. 2003: 292 ff.). On the other hand, it also became accepted that the militarization, as part of the traditional security paradigm, caused environmental degradation (cf. Heininen 2013b: 248). Another important step was the way in which environmental threats are linked to human survival, well-being, and productivity had increasingly become understood, and thus environmental impacts became aspects of human security as well. Environmental protection and enhancement has positive impacts for people's livelihoods, and a functioning ecosystem could reduce vulnerabilities (cf. Khagram et al. 2003: 293, also Washington 2013). Under the changed setup, with increasing access of civil society and indigenous peoples to decision making processes, and with the acknowledgment of the importance of environmental security, a growth of regional and international cooperation occurred, and also non-state actors became increasingly included into the political process: Governance started to replace the traditional ("classic-liberal") state-centered governing system on various scales.

3.2.2. Development of Arctic Governance

During the 1990s, in the Arctic as well as in general, many new political concepts and governance structures were established, out of which numerous intergovernmental as well as non-governmental organizations emerged. Heininen (2004: 27 f.) lists 43 international and regional political, civil, and other organizations and forums for northern and Arctic cooperation, including the working groups of the Arctic Council. The changed international system, which is linked to globalization and regionalization, lead to a 'boom' and to a kind of renaissance in Arctic regional cooperation, which occurred on external, transnational, national, and infranational levels.

For the northern regions, globalization, which in general refers to the global economy and markets, introduced "economic and political engines" from outside the North that made the situation for regional and local actors challenging (Heininen 2004: 35; see also Southcott 2010). Regionalization, on the other hand, which could also be seen as a

response to globalization, offers new opportunities and possibilities for international cooperation on a local scale. While in the traditional international politics, unified states remain the main actors, “the rise of nongovernmental and regional actors can be seen as an impulse to create a new cooperative policy of governments, not to control but to be involved in the North and also to create new kinds of relations between northern and southern actors” (Heininen 2004: 36). At the same time, for regional actors to govern and to develop the region by themselves, sufficient intellectual and material resources are required. Thus it is not the quantity of institutions that counts, but their quality (Ibid.). However, “[d]espite the explosion of development on the 'Arctic region' in policy and research, no directly citizen-oriented or sub-regional body for the Arctic region materialized” (Keskitalo 2004: 9).

While numerous governance networks have been established in the Arctic, the focus in this paper will remain on the AEPS/Arctic Council. This governance network covers the entire Arctic region and includes all Arctic states, as well as the participation of some representatives from civil society. But most importantly: All circumpolar states have stressed in their respective Arctic strategies, the importance of the Arctic Council, which is why “the Arctic Council is still the major forum for both intergovernmental and other cross-border cooperation on arctic affairs” (Heininen 2011: 80).

3.2.3. Arctic Region Building

The regionalization in the Arctic was not only a response to globalization; It was also motivated by attempts to decrease the tension between the East and the West resulting of the Cold War and by recognizing the transition from traditional security concepts toward human security centered approaches. This development contributed to a region building process, which started in the late 1970s⁶ and 1980s. The development was further accelerated when Mikhail Sergeyevich Gorbachev, head of the Soviet Union at that time, held one of his many speeches promoting the initiation of a regional, Arctic cooperation. With this speech in Murmansk, in 1987,⁷ Gorbachev provided the

6 Motivated by US-Canadian conflicts, already in the 1970s Canada suggested to establish institutions to deal with Arctic governance, and in the late 1980s already suggested the establishment of an *Arctic Council*. (Keskitalo 2004: 7)

7 The Speech was held at the ceremonial meeting on the occasion of the presentation of the Order of Lenin and the Gold Star Medal to the city of Murmansk, on October 1st.

momentum needed in order to increase cooperation in the region. Topics he brought on to the agenda where, for example, the protection of (the threatened) polar bears and environmental issues in general (Keskitalo 2004: 6 f.). He stated:

Comrades, speaking in Murmansk, the capital of the Soviet Polar Region, it is appropriate to examine the idea of cooperation between all people also from the standpoint of the situation in the northern part of this planet. In our opinion, there are several weighty reasons for this.

The Arctic is not only the Arctic Ocean, but also the northern tips of three continents: Europe, Asia and America. It is the place where the Euroasian, North American and Asian Pacific regions meet, where the frontiers come close to one another and the interests of states belonging to mutually opposed military blocs and nonaligned ones cross. (Gorbachev 1987)

3.3. From the Arctic Environmental Protection Strategy to the Arctic Council

Gorbachev proposed that the Arctic states should initiate cooperation in various fields, which was inspiring and motivating, and accelerated the establishment of new institutions (Keskitalo 2004: 6 f., also Koivurova and Vanderzwaag 2007: 123). Because Finland's foreign policy had been limited by the Soviet Union during the Cold War, Finland saw a possibility to give rise to its own relevance for larger powers, which is why it quickly took up one political field Gorbachev was addressing and provided the incentive for the Arctic Environmental Protection Strategy (Keskitalo 2004: 6). However, Finland did not define which area would be considered as *the Arctic*, and because of disagreement among the states, no legally binding agreement was signed, and the outcome remained merely a strategy. Beside the AEPS, also the idea of an International Arctic Science Committee (IASC; This committee was supposed to coordinate and organize research efforts of the Arctic states) and the establishment of the International Arctic Social Science Association (IASSA) were inspired by Gorbachev's speech (Ibid.).

3.3.1. Arctic Environmental Protection Strategy

In 1989, on initiative of the Finnish government, officials of the eight Arctic countries came together in Rovaniemi, to discuss a cooperation on ministerial level, which should

deal with Arctic environmental protection issues, a meeting to which also indigenous peoples organizations (IPOs) were invited. Following a number of meetings, in 1991 the Arctic Environmental Protection Strategy was founded (Koivurova and Hasanat 2009: 52). The eight Arctic states (Canada, Denmark, Finland, Iceland, Norway, Sweden, USSR, and USA) committed themselves to a “[c]ooperation in scientific research to specify sources, pathways, sinks and effects of pollution” in the Arctic region. It was decided that potential environmental impacts of development activities should be assessed, and “further measures to control pollutants and [to] reduce their adverse effects on the Arctic environment” should be considered (AEPS 1991: 2). The states emphasized their stewardship over the Arctic's nature and the responsibilities to preserve and protect the Arctic environment. At the same time they declared that the use of Arctic natural resources are considered an important activity, and that the strategy should allow for a sustainable economic development. Thus, the Strategy was “designed to guide development in a way that will safeguard the Arctic environment for future generations and in a manner that is compatible with nature” (AEPS 1991: 7). Despite its economic promise, the main objectives were defined as protecting the Arctic ecosystem and, as a **final goal, eliminating pollution**. The implementation of the AEPS followed the principle, that development activities should provide for the conservation, sustainable utilization, and protection of Arctic ecosystems. Military issues were particularly excluded from the agenda of the AEPS.⁸

In the following ministerial meetings under the auspices of the AEPS, the Arctic states committed themselves to these principles and objectives, while further elaborating the agenda. As part of this, the eight countries highlighted the second principle of the Rio Declaration, stating that nation states have the sovereign right to exploit their own resources pursuant to their own environmental and development policies (AEPS 1993). Nevertheless, in 1996 the representing officials declared “that major issues of protection of the Arctic [...] environments require local, regional, circumpolar and global cooperation and coordination” (AEPS 1996: 1).

⁸ Which is especially interesting to note, since the military activities contributed significantly to the local pollution. (cf. Heininen 2013a)

3.3.2. The Arctic Council

In the same year the Arctic Council was established in Ottawa as a high level forum to promote “cooperation, coordination and interaction among the Arctic states [...] in particular [on] issues of sustainable development and environmental protection in the Arctic” (AC 1996: Art. 1.a). The integration of the AEPS cooperation into the Council was finalized with the Alta Declaration in June 1997 (cf. Koivurova and Vanderzwaag 2007: 128 f.). Because the Council has its own rules and procedures which specify how the Council functions, the Council's structure and working procedure is as formal as that of an international organization, even though it uses a soft law approach and does not qualify as an international organization under international law (Hasanat 2007: 21). It is widely perceived as the main forum on cooperation and coordination of environmental issues and sustainable development in the Arctic region (eg. Koivurova 2011, Nicol and Heininen 2014). While the eight circumpolar states constitute the members of the Arctic Council, six circumpolar IPOs⁹ have been granted the status of permanent participants. Other actors, such as non-arctic states, (global and regional) inter-governmental and inter-parliamentary organizations, as well as non-governmental organizations can apply to become observers¹⁰ (Koivurova and Hasanat 2009: 56, also AC 1996: Art. 3).

Each Arctic state can designate Senior Arctic Officials (SAOs) and each permanent participant can designate a representative, which together act as the focal point for the Council's activities (AC 1998c: Art. 21). SAO meetings are held more frequently than ministerial meetings in order to coordinate the Council's work and to provide for liaison. High level state representatives of the eight Arctic states and representatives from the IPOs meet biannually to discuss the progress. These are ministerial meetings, which constitute the main decision making body of the Council. The majority of the Council's work is, however, delegated to the working groups. Decisions shall be made only after “full consultation” of the permanent participants, which provides the participating IPOs

9 The following organizations are currently admitted as permanent participants: Arctic Athabaskan Council (AAC), Aleut International Association (AIA), Gwich'in Council International (GGI), Inuit Circumpolar Council (ICC), Russian Association of Indigenous Peoples of the North (RAIPON), and Saami Council (SC).

10 Currently 12 non-arctic countries, 9 intergovernmental and inter-parliamentary, and 11 nongovernmental organizations are admitted as observers. For a list of all current observers see: <http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers> (accessed: July 12th, 2013).

with a strong position in the Council (cf. Koivurova and Hasanat 2009: 56). “Even though final decisions are made by the Arctic states in consensus, the permanent participants must, according to the [founding] Declaration, be fully consulted, which is close to a *de facto* power of veto should they all reject a particular proposal” (Koivurova and Heinämäki 2006: 104). The strong involvement of representatives of indigenous peoples makes the Council a comparatively new concept in international cooperation (Hasanat 2007: 19). So far only two legally binding agreements have been made, while the Council basically keeps its soft law approach.

3.3.2.1. Soft Law

A soft law institution can be seen as a typical form of law used for the implementation of a governance system: It has fluid transitions from formal law to quasi-legal forms of regulations in international law. A Soft law setup can often be found, for example, in intergovernmental agreements or institutions. The outcomes of soft law bodies frequently result in agreeing to codes, declarations, guidelines, catalogs of principles, or memorandum of understandings. Although not legally binding, in practice soft law often proves to have considerable normative force and can influence international law as much as hard law (which at the end can be shaped through a consensus as well). While soft law outcomes might sometimes sound like empty phrases, they can unfold strong impacts and also shape international (hard) law. Soft law bodies are often specialized and detailed, yet offer high flexibility for changes. (Picotto 2007: 165 ff., see also Hasanat 2007: 14 ff.).

The constituent instrument of the Council was a declaration rather than a treaty, which indicates that it is non-binding. The Council's political power seeks to promote the Council's contribution, which rarely involves binding commitments. Thus, the Arctic Council can be seen as a soft law organization (Hasanat 2007: 21). Picotto notes that a soft law body qualifies as a neoliberal system because it stands for a deregulated setup: No (hard – or legally binding) laws are made, and it thus leaves open space for various actors (such as for example commercial corporations) to be able to implement their own standards, according to their individual needs. Even though soft law might be transformed into hard law, it is often intentionally made non-binding, so that private organizations (e.g. commercial corporations) or other actors do not become alienated or

discouraged, since they generally prefer to have forms of voluntary self regulation. After commercial corporations urged states to perform liberalization and deregulation, transnational corporations started to develop and implement a code of conduct, in order to convince costumers and other stakeholders of their responsibility for ethical behavior. Their argument behind this is the need to keep norms flexible in regard to the characteristics of their business. However, critics counter that standards set by self regulation are (often) insufficient and distort competitive equality of opportunities (Picotto 2007: 265 ff.). Also Hasanat argues that the complex political structures within nation states, which are characterized by their wide variety of differing interests, or groups of different interests, are one of the major problems in the international law-making processes, as they hinder or slow down the process of legally binding decision making. Furthermore, the involved parties may also fear potential sanctions if they should not be able to fulfill legally binding regulations. These fears of various actors might hamper or delay their commitment to hard law, both in national legislation and on an international scale. In this manner, if achievable common decisions are out of reach, so-called soft law institutions can help in accelerating the establishment of rules or regulations. Another advantage of soft law instruments is that non-state actors can be involved as well (cf. in Hasanat 2007: 16). Under the *Vienna Convention on the Law of Treaties*, which was signed in 1969, it was not anticipated that non-state actors could become parties of international treaties, and it thus left national states as exclusive, possible signatories. While it is possible that nation states could negotiate under the support or involvement of representatives with a non-governmental background, the latter could neither become parties nor be admitted to become signatories. Technically, this is also the case for the Arctic Council, even though the IPOs have to be consulted. However, non-indigenous organizations of civil society (i.e. non-indigenous non-governmental organizations) can only become observers and not permanent participants.

3.3.2.2. Working Groups

Soft law institutions are often specialized in certain issues, which is a typical characteristic for governance networks. It is also characteristic for governance systems that a big share of the work is delegated to technical experts or epistemic communities. Such structures have been proved to be very effective in mobilizing and stabilizing

governance regimes (Picotto 2007: 268 f.). This is also true for the Arctic Council. When the AEPS was established, it had no secretary or any other physical body. Only recently, in 2011 at the Nuuk ministerial meeting, the Arctic Council agreed to replace the rotating secretariat with a permanent one, which is now located in Tromsø (Sellheim 2012) and constitutes a physical materialization of the Arctic Council. While the ministerial and the SAO meetings have the purpose of coordinating and overseeing the work, the majority of the actual work is delegated to the working groups. When the AEPS was established, it “contained obligations requiring the Arctic states to establish working groups specialized in certain aspects of pollution problems in the region” (Koivurova and Vanderzwaag 2007: 124), which laid the basis for establishing the CAFF (Conservation of Arctic Flora and Fauna), PAME (Protection of the Arctic Marine Environment), AMAP (Arctic Monitoring and Assessment Programme), and EPPR (Emergency Prevention, Preparedness and Response) working groups. All of them have then been incorporated into the Arctic Council. Furthermore, under the auspices of the Council, the Sustainable Development Working Group (SDWG) and the Arctic Contaminants Action Program (ACAP) working groups have been additionally established.

Yet also expert networks include political activists as well. In general, the contribution of technical experts in governance networks is to gain approval for (political) suggestions. These are scientifically argued through reports or guidelines, which are outcomes of the working groups. Nevertheless, the results usually have to be affirmed by the political stakeholders beforehand (Picotto 2007: 268 f.). The processes of knowledge production and of defining discourses are, however, subject to resource allocation within the institutions: Who is allowed to say what? What can be said in which way (cf. Keller 2011: 66 f.)? Furthermore, the working groups depend on the funding of the Arctic states, hence also the topics for the researches and reports are given by the Council's members. In this way, the working groups also generate the knowledge which is reflecting the interests of the dominant powers, and materializes it into Arctic governance. On the other hand, technical reports are also in danger of being too specific on a subject, so that the complexity of a holistic system might not be properly taken care of (Picotto 2007: 268 f.). One example that shows the normative potential of soft law through the impacts of a technical report of the Council's working groups is the Arctic Climate Impact Assessment, which has been able to establish the

Arctic region as a global barometer for climate change (see chapter 3.3.5.2).

3.3.3. Sustainable Development in Arctic Governance

When the Arctic Environmental Protection Strategy was established in 1991, the agenda – as the title also suggests – was very much focused on environmental issues. However, over time the discourses changed: While at the beginning, pollutants and contaminants from outside of the Arctic were the main focus, the environmental focal point then shifted toward climate change. Yet even more important: The general discourse shifted from an environmental agenda to an economic one. This shift came gradually, and was accompanied by – or initiated through – the sustainable development discourse that took over the Council's objectives.

While it is true that already the founding document of the AEPS left open space for utilizing natural resources in the Arctic, it is likewise true that the main focus was clearly set on environmental protection. To be more precise, the Arctic states declared that environmental protection would constitute the agenda, even though the “Strategy should allow for sustainable economic development” (AEPS 1991: 6 f.). All of the four original working groups of the AEPS (CAFF, PAME, AMAP, EPPR) deal particularly with environmental protection, or, as in the case of the EPPR, with the response to environmentally harmful incidents. With the establishment of the Arctic Council, the working groups were integrated into the Council. Furthermore, to promote the new objective of achieving sustainable development in the Arctic, the Council decided to “adopt terms of reference for, and oversee and coordinate a Sustainable Development Program” (AC 1996: Art. 1. c), which was defined as follows:

The goal of the sustainable development program of the Arctic Council is to propose and adopt steps to be taken by the Arctic States to advance sustainable development in the Arctic, including opportunities to protect and enhance the environment, and the economies, cultures and health of indigenous communities and of other inhabitants of the Arctic, as well as to improve the environmental, economic and social conditions of Arctic communities as a whole. (AC 1998a)

In the Iqaluit Declaration, the Arctic states affirmed the objectives of the Sustainable Development Program (cf. AC 1998b: Art. 1) and established the Sustainable Development Working Group (SDWG), which was supposed to propose priority areas for the further progress of the Sustainable Development Program. In the Barrow

Declaration the Arctic Council endorsed and adopted the Council's Sustainable Development Framework Document (AC 2000a: Art. 1), which constituted the basis for continuing cooperation on sustainable development in the Arctic.

Koivurova and Vanderzwaag argue that the Council amended the forms of Arctic cooperation from the AEPS, and substantially extended the terms of reference that were centered on environmental protection (2007: 129). The Arctic Council's mandate was more broadly defined, in order to cover “common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic” (AC 1996: Article 1. a). At the 2000 ministerial meeting in Barrow, the results of this transition became visible through the declaration stating “that the **Arctic Council** [...] has successfully taken on the responsibilities of the Arctic Environmental Protection Strategy (AEPS) and has also **moved beyond that Strategy to consider the question of sustainable development** including the implementation of new projects and programs within the Council's mandate” (AC 2000a: 1, own emphasis). The Sustainable Development Framework Document further denotes that the Arctic Council expanded the scope of the AEPS “to include a broader sustainable development policy framework” (AC 2000b: 1), and it clarifies that “[t]he Sustainable Development Program should leave future generations in the North with expanded opportunities and **promote economic activity that creates wealth and human capital**” (Ibid., own emphasis). At the ministerial meeting in Inari in 2002, *Human Conditions in the Arctic* became the first addressed issue of the declaration, promoting further commitment to sustainable development (based on the Framework Document). With the transition to the new focus on Arctic human development, the Council now encourages the Arctic States to develop concrete projects in the field of economic cooperation and emphasizes the significance of building infrastructure, including aviation, marine, and surface transport. Also in the first point of the latest declaration from the Kiruna ministerial meeting in 2013, the Arctic Council emphasizes the central role of business in Arctic development, which is supposed to advance sustainable development in the region. Generally, economic issues represent the most prominent thematics in this declaration (AC 2013a). Even more direct is a statement that appears in the “Visions for the Arctic” document, which was also published at the Kiruna ministerial meeting and which emphasizes that “[e]conomic cooperation will be on the top of our agenda” (AC 2013b: 2).

To summarize the changes that occurred with the establishment of the Arctic Council: Whereas the AEPS aimed for environmental protection while allowing for economic development, the discourse in the Arctic Council's ministerial reports has changed, now emphasizing economic development while considering environmental impacts. Although cursorily these objectives might sound similar, they target different interests: Keller denotes that even the same statement can have diverging meanings in different situations, which is why it is necessary to also consider in which context a statement is embedded (Keller 2011: 67). Furthermore, the analysis above shows that the discourse approach within Arctic governance is of an economic nature.

3.3.4. Quantification of the Discourse Change

To better understand the differences between these two approaches, a quantification of words and terms used in the ministerial meeting reports help to contextualize the diverging approaches. In the ministerial meeting reports, not only the appearance of the title of the main discourse(s) is of research interest, but also compatible parts of the discourse(s) that describe or constitute the discourse in focus (cf. Keller 2011: 113).

For this paper, a direct comparison of the Arctic Environmental Protection Strategy (1991) and the Kiruna declaration (2013) should illustrate the discourse change, which has been visualized in two word clouds (see Figure 2 and Figure 3).

3.3.4.1. “Oil” in the Ministerial Reports

Word count	AEPS		Kiruna Declaration	
pollut*	69	0,77%	5	0,24%
contaminat*	33	0,37%	0	0,00%
environment*	101	1,13%	10	0,48%
oil	40	0,45%	4	0,19%
econom*	5	0,06%	8	0,38%
business	0	0,00%	4	0,19%
human	10	0,11%	3	0,14%
sustainabl*	6	0,07%	8	0,38%
development	19	0,21%	6	0,29%

Table 1: Count of key words in the Rovaniemi Declaration (AEPS 1991) and in the Kiruna Declaration (AC 2013a) in absolute numbers and frequency (per cent of all words in the respective document).

In the AEPS document the phrase *Arctic Environmental Protection Strategy* has been excluded from the count. Because of the different lengths of the documents, the word-frequencies are more significant for the comparison.

word *oil* (appears 40 times, or 4.5 per mill of all the words) is only used in the context as being a pollutant, or in addressing the potential environmental problems that can be caused by oil spills. While the author expected that in the Kiruna Declaration the term *oil* might rather be used in the context of economic development, it was a surprise to only find it (4 times, or 0.19 per mill of the words) in the context of “Protecting the Arctic Environment” as well.

The reason for the author's expectation to find *oil* in a more economic and positive notion in the Kiruna Declaration is due to the discourse change and the appearance of oil as a potential contributor to sustainable development in earlier ministerial reports: While in the AEPS oil was described as a pollutant (which needed to be eliminated from the Arctic), oil became a valuable and appreciated resource over time. The notions in the ministerial reports show that the idea that oil is and will be extracted in the Arctic has become accepted. Although, on the one hand, putting an effort into limiting the potential harmful environmental impacts of oil is still a clear and visible goal, on the other hand, the work of the Arctic Council has also carried out preparation for an increase of hydrocarbon development in the Arctic, which hardly can contribute to a decrease of oil

Because of the case study that focuses on hydrocarbon extraction in the Arctic and in Arctic governance, it also seems important to add the usage and appearance of words connected to fossil resource extraction to the analysis.

In the Arctic Environmental Protection Strategy the

pollution. By setting guidelines on how oil extraction should be carried out, the Arctic states prepare the necessary basis for increasing Arctic oil production.

For example, in the AEPS oil was listed as a pollutant of the Arctic. In the fourth chapter of the Inari Declaration, which is on *Biodiversity Conservation and Sustainable Use of Natural Resources*, the Arctic Council recognizes the “potential for the development of oil” and natural gas “to impact on the local standard of living and emphasize the importance of responsible management of these resources” (AC 2002: Art. 7). And in the Tromsø Declaration, the signees “[r]ecognize that environmentally sound oil and gas activities may contribute to sustainable development of the Arctic region” (AC 2009: 6). To the author it is not clear why oil is not used in such a distinctive positive connotation in later ministerial reports. One explanation could be that after the devastating oil spill in the gulf of Mexico in 2010, the states tried to avoid openly discussing oil and natural gas development as a potential contribution to sustainable development; However, this explanation remains a speculation after all.

In any case a difference in the usage of the term *oil* can be seen over time. Even though the Kiruna Declaration stresses the importance of oil spill prevention, it takes into account that oil is – and will increasingly be – extracted in the Arctic. The Arctic states have also started to prepare for potential accidents in the Arctic, which becomes more important with increasing hydrocarbon activities in the region. In 2011, at the Nuuk ministerial meeting, the first legally binding agreement under the auspices of the Arctic Council was signed; This is the *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic* (AC 2011: 2). Already at the next ministerial meeting in Kiruna, the second legally binding agreement of the Arctic Council was signed, namely, the *Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic* (AC 2013a: 4). Committing to a common response strategy in case of a potential oil pollution is, however, not only a contribution to an increase of oil development, but also essentially a subsidization of oil development, as the states invest their resources in setting up infrastructure for such ventures. In general, states often offer their services to transnational corporations and the financial markets, and not any longer to the society (cf. Picotto 2007: 253).

3.3.4.2. Configuration of the Ministerial Meetings

Beside the alteration of the discourse in the ministerial reports, also the configuration of the meetings gives place for conclusions regarding the changed approach of Arctic governance. In the national Arctic Strategies (see chapter 3.4), the need for hydrocarbon development in the Arctic is not only argued as important for the economic development in the region, but also as a security issue: “In the Arctic, energy security has a growing strategic importance for the national interests of a state in ensuring its access to energy resources; it also plays a key role in foreign policy as well as in the economics of a state” (Heininen 2013a: 45). Even though energy security also includes aspects of environmental security, it is an issue discussed within foreign affairs: Energy security is of such high strategic importance that some Arctic states “have taken on the responsibility to protect strategic energy resources, such as oil and natural gas deposits” (Ibid.) and are ready to guarantee energy security with military force. It is thus part of classic geopolitics and the traditional security concept because energy security is an issue of state sovereignty and state hegemony (Ibid.; see also chapter 5.2.3). Therefore, energy security is rather discussed by (high state) representatives from foreign affairs than by representatives from the ministries of environmental affairs.

Within Arctic governance, parallel to the change of the dominating discourse, also the configuration of the main body of the Arctic Council has been altered. While at the period of the AEPS, representatives from environmental or regional ministries were in the majority, this gradually changed in the course of time in favor of representatives from foreign affairs or high state officials (see Figure 4). Even though it would be difficult to construct a causal connection between the configuration change and grown hydrocarbon interests in the Arctic, an upgrade of the representatives nevertheless correlates positively with the increased interest in fossil resource exploitation. However, this illustration has to be read with care; It also only refers to the departmental origin of the signees and does not reflect their respective agendas or interests. In any case, it shows a clear trend, which highlights the increased importance of Arctic governance as a forum to discuss issues of state sovereignty rather than “only” cooperating on environmental protection.

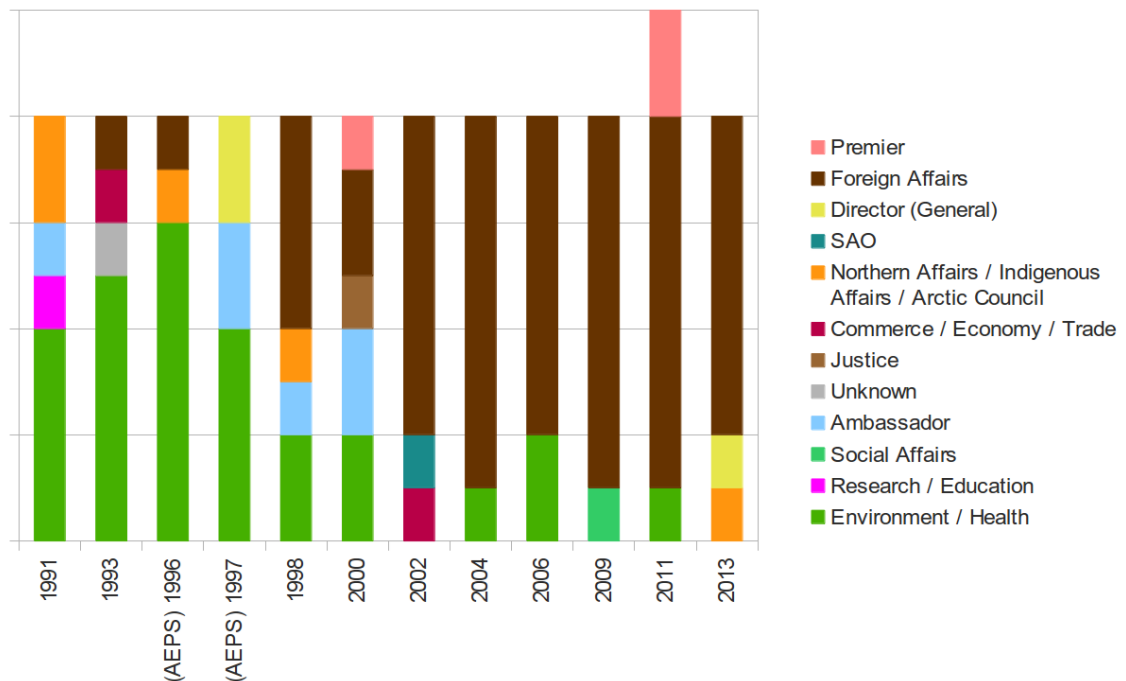


Figure 4: Departmental configuration of signees (national states representatives) in the ministerial meetings of the AEPS and the Arctic Council. Note that the peak in 2011, in which the number of eight signees was overdrawn, is due to the fact that also representatives from Greenland and the Faroe Islands were present additionally to a representative from Denmark. Own illustration.

3.3.5. Climate Change in Arctic Governance

Even though sustainable development has become the distinguishing discourse in Arctic governance, environmental protection still is a crucial part of the Council's policies. Climate change, perhaps the most challenging global environmental problem, has also become accepted as the biggest stressor in the Arctic region. While hydrocarbon extraction is increasingly seen as a possibility to stimulate sustainable development, hydrocarbon technologies (in the upstream as well as in the downstream) significantly contribute to greenhouse gas emissions, which is the major driver of anthropocentric climate change.¹¹ According to the IPCC,¹² carbon dioxide emissions from fossil fuels

11 The IPCC states that climate change is very likely caused by anthropocentric greenhouse gas emissions, whereas *very likely* means with a certainty of 90 to 95 per cent. (IPCC 2007: 27)

12 The IPCC (Intergovernmental Panel on Climate Change) is an independent, scientific intergovernmental body, which is mainly publishing reports (based on scientific studies) that are of significant relevance for the implementations of the UNFCCC and for the global climate regime.

The UNFCCC (United Nations Framework Convention on Climate Change) is one of the outcomes of the United Nations Conference on Environment and Development, which took place in Rio, in 1992. It is a legally binding convention with the main objective to stabilize the amount of greenhouse gas emissions, in order to limit the global temperature increase.

are responsible for 56.6 per cent of the global anthropogenic greenhouse gas emissions (IPCC 2007: 36). It is thus safe to say that the utilization of hydrocarbons is a major driver of climate change. Combustion of fossil fuels dominates the global energy market, resulting in accumulated carbon dioxide releases of 1100 Giga tonnes since the mid 19th century (Sims et al. 2007: 253). The largest increase of greenhouse gas emissions originates from energy supply, transport, and industry (IPCC 2007: 36 ff.)

3.3.5.1. Climate Change in the Arctic

Especially in the Arctic context it seems ambiguous to promote hydrocarbon development and climate change mitigation, since the latter makes hydrocarbon activities in the maritime area feasible. Palosaari titled this phenomenon *the Arctic paradox*: “The faster we use fossil fuels, the sooner we get access to new oil and gas resources” (Palosaari 2012: 24). Even though the current carbon dioxide emissions do not originate primarily in the Arctic, they cause severe changes in the Circumpolar North as well as globally. The already released carbon dioxide will keep the average temperatures elevated for centuries, even if harmful emissions ceased immediately. However, the amount and speed of the warming can be reduced by future emission mitigation (ACIA 2005, also IPCC 2007).

It has been recorded that a temperature increase is widespread over the globe and that this phenomenon is stronger in northern latitudes: “Average Arctic temperatures have increased at almost twice the global average rate in the past 100 years“ (IPCC 2007: 30), and a further acceleration of this climatic trend is projected (ACIA 2004: 8). Since 1973 the Arctic sea ice extent has shrunk annually by 2.7 per cent per decade (cf. Figure 5). The impact of climate change on the Arctic has been witnessed by the inhabitants as well as by scientific observers. Since the 1950s, the average annual temperatures have increased by 2 to 3 degrees Celsius during summer, and by 4 degrees Celsius in winter (ACIA 2004: 3). The annual average amount of precipitation has increased more than the global average as well (Anisimov et al. 2007: 656). Such trends are also forecast for the future. The IPCC B2 scenario¹³ of the fourth IPCC assessment

13 The IPCC B2 scenario is based on the assumption of local solutions for social, environmental and economic issues. The population growth is based on the UN prognosis and with a mediate economic growth- and technological progress scenario. Summarized, the B2 scenario can be seen as a mediate scenario. (IPCC 2000: 5)

report predicts a further temperature increase for the region north of the 60 degree latitude of 2 to 3 degrees Celsius until 2050. Models of the Arctic Climate Impact Assessment (ACIA), based on the same scenario, estimate an average temperature increase of 5 degrees Celsius in the Arctic until the end of the 21st century, while the global average temperature increase is estimated at 3.5 degrees Celsius. However, as it was measured in the past, regional variations have to be assumed (Huntington et al. 2005: 3 ff.). Seasonal differences are predicted to continue too: For winter months, temperature increase of up to 9 (!) degrees Celsius is predicted in some Arctic maritime areas, whereas certain land areas might not experience more than 1 degree Celsius increase during summer. Also precipitation is projected to increase by 5 to 10 per cent over the North Atlantic Ocean, while other Arctic regions could expect an increase of 35 per cent; Precipitation increases are assumed to be stronger in winter months too (Ibid.). Therefore, winters are forecast to become shorter and warmer, with larger amounts of snow, even though the snow might come later and melt earlier.

The reason for more significant impacts on the maritime area is because of the influence of the sea ice on temperature patterns: The air temperature is strongly influenced by the thickness and extent of the sea ice (Ibid.). While the IPCC expects Arctic summer sea ice cover to last until the 2030s, some more recent studies suggest that the Arctic sea could be ice free over summer already by 2015 (in Collins November 8th, 2011). Indeed, in the past decade some of the smallest Arctic sea ice extents have been recorded: The National Snow and Ice Data Center announced a new record low in Arctic sea ice extent in September 2012 (NSIDC October 2nd, 2012); The second lowest extent has been measured in 2007; The third lowest in 2011 (see Figure 5). Exploiting the Arctic's hydrocarbons might accelerate climate change significantly (see chapter 4.3.1.7).

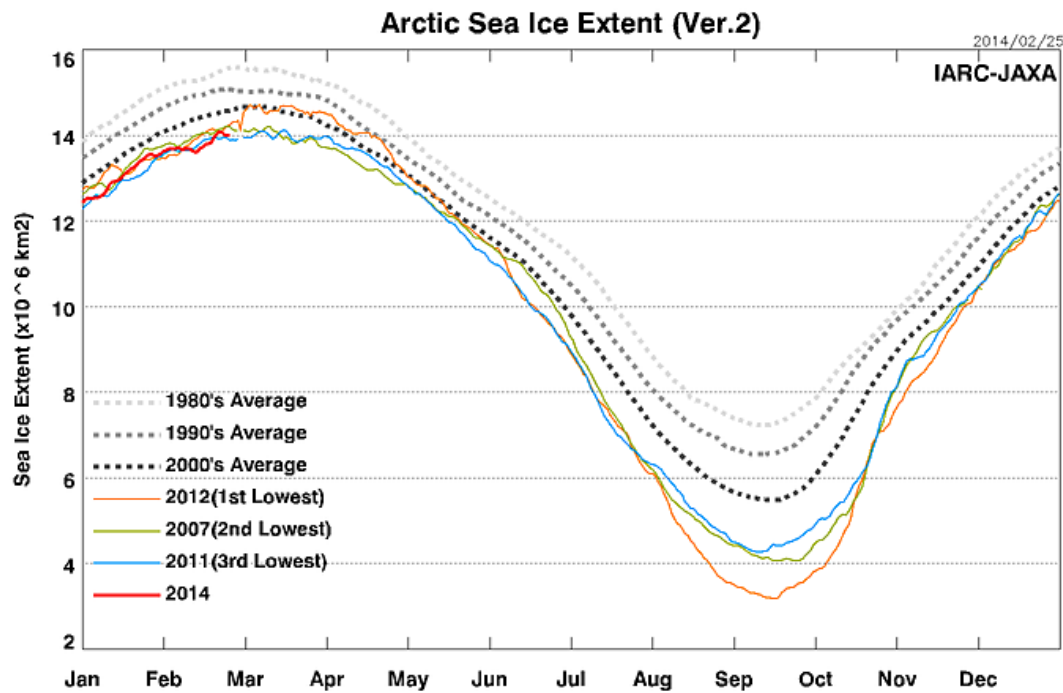


Figure 5: Arctic sea ice extent. Source and illustration by: IJIS (IARC-JAXA Information System). http://www.ijis.iarc.uaf.edu/en/home/seaice_extent.htm. Accessed: February 25th, 2014.

3.3.5.2. Climate Change in Arctic Governance

Although concerns relating climate change have been expressed since the beginning of the AEPS, they have not been further addressed within the Strategy: The significance of climate change on the Arctic region was 'respected', but climate change should remain an issue of other international mechanisms (AEPS 1991: Art. 6). The assimilation of climate change into the forum's agenda can be traced back to the Inuvik Declaration in 1996, in which the AEPS members confirmed their support of the UNFCCC and requested the AMAP to review existing programs dealing with climate change (cf. AEPS 1996: Art. 6). After the establishment of the Arctic Council, research on climate change was intensified. In 1998, AMAP and CAFF together organized a workshop on climate change and started to cooperate with the IASC (International Arctic Science Committee) in this respective issue. The cooperation led into the Arctic Climate Impact Assessment, which got funding provided under the United States chairmanship of the Council. "The ACIA can be considered a significant regional response to climate change" (Koivurova and Hasanat 2009: 65), and should evaluate and synthesize

knowledge on climate change in the Circumpolar North, to support policy making processes and the work of the IPCC (AC 2000a: Art. 3). Because of the dramatic findings of the Arctic Climate Impact Assessment (see above), there have been high expectations that the Arctic Council would do something substantial in the ministerial meeting in Reykjavik, in 2004¹⁴ (Koivurova and Hasanat 2009: 67). The respective declaration recognized the findings of the ACIA and urged to take them into account in Arctic national and international policy making (AC 2004). However, because of the Council's soft law approach, any legally binding agreement on climate change would have been surprising. Nevertheless, as a direct result of the ACIA findings, the member states of the Arctic Council, together with the permanent participants and the Council's observers, issued a joint statement at the first meeting of the Kyoto Protocol,¹⁵ stressing that the global climate regime and the IPCC should take the ACIA results into account for their future decisions (ibid.). Recently the Arctic states confirmed their committed strong efforts to the implementation of measures and urged “all parties to the UNFCCC to take urgent action to meet the long-term goal of holding the increase in global average temperature below two degrees Celsius above pre-industrial levels” (AC 2011: 6). This threshold is considered to be the limit for dangerous climate change and thus also is the overall target of the UNFCCC, although some claim that this limit is set too high (cf. in Duyck 2012: 592).

As a soft law institution, the main way of policy making in the Arctic Council is not by signing legally binding agreements or treaties, but by influencing discourses and other political bodies with technical expertise (see chapter 3.3.2.1 and 3.3.2.2). The Arctic Climate Impact Assessment, for example, compiled under the Council's auspices, brought together 300 scientists and indigenous traditional knowledge experts “that established the Arctic as a barometer of climate change” (Koivurova 2013: 71). The ACIA gave indigenous people a voice and the opportunity to share their view of the observed changes in the Arctic with a wide audience. By providing stories, reports, or pictures, the inclusion of indigenous traditional knowledge and observations of Arctic

14 The ACIA synthesis report was published just before the Arctic Council's ministerial meeting in Reykjavik, in 2004, took place.

15 The UNFCCC only generally lays out mitigation and adaptation duties for the states. Binding emission reduction targets, however, were negotiated separately under the Kyoto Protocol, which is the main instrument of global climate change mitigation and has been negotiated under the auspices of the UNFCCC. The first meeting of the Kyoto Protocol was at the same time the 11th UNFCCC conference of parties, held in Montreal in 2005.

inhabitants might have allowed the assessment to be read and understood by a wider audience than a conventional scientific report, which is often hard to understand for people without a technical background (Martello 2008). The Assessment also established climate change as a cross-cutting issue within the Arctic Council, and, consequently, other relevant assessments have been carried out as well. In addition, the ACIA led to specific projects that highlighted the importance of the Arctic within the world's climate system. Furthermore, the Arctic Climate Impact Assessment contained some policy recommendations and also proved to be a vehicle for strong international environmental policy.¹⁶ The Arctic states issued joint statements at numerous conferences of the climate regime and urged the international community to take additional measures to address short-lived climate change causing emissions (Koivurova 2013: 72 f.).

3.3.5.3. Circumpolar States and International Climate Policies

The engagement of the eight Arctic states in climate change mitigation activities nevertheless is very ambivalent. On the one hand, the states show commitment through the Council's declarations, in which they reiterate their support for the UNFCCC and urge the international community to take action against climate change. On the other hand, some Arctic states seem to be reluctant to fully commit to the international climate regime: The USA did not ratify and Canada has been the only state that withdrew from the Kyoto Protocol. Iceland negotiated significant exceptions from the Protocol. Furthermore, three nations (United States, Canada, and the Russian Federation) won't be party of the second commitment period of the Kyoto Protocol, and one country (Iceland) and one region (Greenland) have some exceptions (Duyck 2012: 595 ff.). This is especially disappointing, as the biggest emitters of the Circumpolar states – USA, Canada, and Russia – refused full participation in the prevailing global climate regime. Thus it is also questionable, how serious the position on climate change of the Arctic Council can be taken. While Duyck suggests that “the Arctic Council could be seen as a promising venue for a stronger connection between climate vulnerability and mitigation actions” (2012: 616), Koivurova claims “that tackling climate change is just a too high-level policy area for Arctic considerations

16 For example through the influence of the Council's members in the negotiations of the persistent organic pollutants convention in Stockholm in 2001, or by jointly supporting the IMO negotiations to transform the non-binding Polar Code into a legally binding agreement. (Koivurova 2013: 72 f.)

alone to play a role in the way the Arctic States conduct their mitigation policies,” and adds that “even in the field of adaptation, the national strategies of the Arctic States do not greatly flag up the Arctic as a special place of concern” (2013: 74). It is, however, also difficult to contribute to carbon dioxide emission reduction when at the same time aiming to promote greenhouse gas emitting industries, such as through hydrocarbon development.

3.4. National Arctic Strategies

The Arctic Council sees climate change as a threat to the Arctic region, while, on the other hand, retreating sea ice eases hydrocarbon extraction in the High North. Exploiting these resources is aspired in Arctic governance in order to stimulate sustainable development. Extracting fossil resources in the Arctic is, however, also of strategic importance for the Arctic states, helping them to achieve a higher degree of energy security, which is necessary in order to maintain their respective national sovereignty (cf. Heininen 2013a: 46). Thus it is important to have a look at the states' interests in the Circumpolar North: Not only to study whether there are diverging interests and power struggles amongst the Arctic states, but also for a better understanding of where the prevailing dispositive of the sustainable development discourse originates, since “[d]iscourses exist only insofar, as social actors implement them” (Keller 2011: 67). The national Arctic strategies have been chosen because they are compendiums of the states' interests in the Arctic and because they define the official positions of the Arctic policies of the eight circumpolar states.

3.4.1. Canada

The government of Canada is keen to extract the vast potential of the Arctic region in a sustainable manner in order to ensure economic and social development in the North. Beside (already existing) on-shore exploration and production, the Canadian strategy stresses the country's renewed interest in developing hydrocarbon deposits offshore, including exploration of oil and natural gas in the deeper waters of the Beaufort Sea. The Canadian government hopes to create a more effective private sector exploration by putting efforts in extended Geo-mapping for mineral and petroleum reserves (Government of Canada 2009).

3.4.2. Kingdom of Denmark (Greenland and Faroe Islands)

The Strategy of the Kingdom of Denmark stresses that seizing the Arctic resources is an overriding political priority, in particular for Greenland. The resource sector has been fully taken over by the Greenlandic Self-Government on January 1st, 2010, in order to allow the Self-Government to build growth-industries and a self-sustaining economy. The Greenlandic parliament has already started a Mineral Resource Fund (inspired by the Norwegian petroleum fund as a role model) to guarantee that the potential oil and gas revenues can be saved for future generations. While the first exploration license sales for the Faroese shelf was held in 2000, Greenland is holding license rounds biannually since 2002 (Ministry of Foreign Affairs, 2011a). Especially in the case of Greenland it should be noted that natural resources are not only of importance for economic development, but can also contribute to increase autonomy: Currently, the major share of Greenland's income originates in the annual Danish block grant; Hydrocarbon revenues could allow Greenland to become financially self-sustaining (Kleist 2011: 175 f.).

3.4.3. Finland

Although not a coastal state, also Finland stresses the importance of Arctic oil and natural gas reserves for increased economic activities and for the necessary energy supply, and thus sees the Arctic as a potential major energy reserve. Furthermore, the government wants to get involved in hydrocarbon development in Norway's and in the Russian North on a subcontractor basis on the well-site, as well as through Arctic marine transport. The Finnish government stresses the nation's experience and knowledge base in winter shipping and wants to make use of Arctic technology in Arctic sea transport and shipbuilding. In order to increase Finnish economic development and industry, the government perceives it as important to increase large seaports as well as land-based support for oil and natural gas activities in Norway and Russia (Prime Minister's Office, 2010).

3.4.4. Iceland

Compared to the other circumpolar states, the Arctic strategy of Iceland is more reserved in regard to hydrocarbon development. This might be due to the fact that Icelandic waters are not estimated to be heavily oil prone, as well as to the fact that the Icelandic energy regime is not highly dependent on fossil fuels (since the share of renewables in primary energy production is very high). However, Iceland also hopes to extend its own fossil activities (for example in the so-called Dragon area) and would like to strengthen economic cooperation with Greenland and the Faroe islands in the field of oil and natural gas exploitation (Parliamentary Resolution, 2011).

3.4.5. Norway

Norway's economic development has been highly dependent on hydrocarbon extraction since the 1970s. The government perceives energy as a key element in the dialogues with the Norwegian partners and as an essential security issue. However, due to recent declines in Norwegian oil and natural gas production (IEA 2011b: 3), the government is now facing the need to ensure sufficient exploration in the Arctic, especially in the Barents Sea and (in the future also) off the Lofoten archipelago, in order to maintain high production rates. Furthermore, the government also expects to gain economic benefits in the northeastern part of Norway through hydrocarbon developments in the Russian Arctic maritime area (Norwegian Ministry of Foreign Affairs, 2006).

3.4.6. Sweden

Sweden wants to promote sustainable development in the Arctic by anticipated extraction of hydrocarbons in the Circumpolar North. High priority in order to achieve Sweden's economic, energy, and environmentally related objectives is laid on increased trade, as well as through cooperation in energy and raw material-based sectors. Sweden also sees opportunities for its national companies in the increase of the extraction of the Arctic's oil and natural gas resources, either by Swedish petroleum companies on a subcontractor basis or by providing experience, skills, machine supplies, etc. Even though the strategy stresses that Sweden does not have direct national energy interest in Arctic hydrocarbons, the country still expects to benefit from potentially falling prices

on the world market through a larger volume of traded hydrocarbons, as well as by participating as a partner in the oil and natural gas extraction business (Ministry of Foreign Affairs, 2011b).

3.4.7. Russian Federation

The recently updated Arctic strategy of the Russian Federation aims to achieve socio-economic development through resource extraction, in particular through the development of hydrocarbons. For this purpose the state plans to continue studying the continental shelf and coastal areas and to prepare for exploration – also through the implementation of infrastructure programs. The strategy stresses that estimated reserve deposits should guarantee Russia's energy security and sustainable development of the energy sector. Areas of main interest are the Pechora field, the Barents, Pechora, and Kara Seas, and the Yamal and Gydan Peninsulas. The strategy additionally stresses the state's interest in protecting these developments (Government of the Russian Federation February 20th, 2013).

3.4.8. United States of America

The also just recently updated Arctic strategy of the United States sees the Arctic as a potential region for the advancement of their strategic priorities in the present austere fiscal environment, through the development of the economy and the energy resources in a sustainable manner. With the increasing accessibility the US sees new opportunities emerging in their economic and strategic interest: “The Arctic region's energy resources factor into a core component of our national security strategy: energy security” (The White House 2013: 7). The Arctic reserves are expected to reduce reliance on imported oil by developing new domestic energy sources.

3.4.9. Common Ground

Economic development is one of the main priorities in all the Arctic strategies (besides sovereignty and national security issues), and it generally refers to natural resource exploitation and particularly to the exploitation of fossil energy sources (cf. also Heininen 2011: 80). Offshore hydrocarbon development is defined as an important way

for stimulating sustainable development in the North in all Arctic strategies (except for the case of Iceland), even in those states that don't have access to the maritime Arctic. Energy security is a crucial argument for promoting oil and natural gas extraction, however, direct economic benefits from hydrocarbon activities are valued as well: Even the states without access to the waters of the High North aspire Arctic offshore business opportunities, either by bringing their national oil and natural gas companies to take part in the resource exploitation, or through opportunities in the accompanying shipping. Thus, energy security became an important new factor in Arctic politics. Especially Norway, the Russian Federation, and the United States “have taken on the responsibility to protect strategic energy resources” and “are ready to guarantee energy security by the military means, if necessary” (Heininen 2013a: 46).

3.5. The Arctic Five

In May 2008, on invitation of the Minister for Foreign Affairs from Denmark¹⁷ and the Premier of Greenland, the five littoral states of the Arctic Ocean (Canada, the Kingdom of Denmark, Norway, the Russian Federation, and the United States of America) met in Ilulissat (Greenland) for discussions. The issues on topic were the impacts of climate change and the potential natural resource exploitation. The participants declared that “[b]y virtue of their sovereignty, sovereign rights and jurisdiction in large areas of the Arctic Ocean the five coastal states are in a unique position to address these possibilities and challenges” (A5 2008: 1). This seriously defies the Arctic Council network, since three members and the permanent participants were left out. In the Ilulissat Declaration, the Arctic Five have agreed to strengthen the cooperation on challenges like resource developments in the Arctic Ocean within the new forum (by also appreciating the Arctic Council).

It is yet unclear which effects this exclusive forum might have on the Arctic Council, however, the Arctic Five “are now increasingly considered to be the actors with legitimate ‘state’ interests, authorised to act on the stage of international law” (Nicol and Heininen 2014: 82). These five states constitute the countries with the biggest interest in Arctic offshore hydrocarbon extraction. Furthermore, the Arctic Five represent a forum,

17 The Self-Government of Greenland has a high level of autonomy, however, one of the very few fields where it cannot take on the responsibilities on its own is foreign affairs. (cf. Kleist 2011: 185)

in which the EU member states (Finland and Sweden) and a potential EU applicant (Iceland) are absent. This is noteworthy, since the EU's Arctic policy emphasizes strict environmental management and less aggressive hydrocarbon interest (COM 2008). Moreover, the EU has not been accepted as an observer in the Arctic Council.

Due to lack of information, it is difficult to say whether the Arctic Five established a hegemonic alliance in order to promote common interests in the Arctic Council. However, it is notable that in 2009, only one year after the Ilulissat meeting, oil and natural gas activities have been recognized as a contribution to sustainable development in the Arctic (AC 2009:6). In the case of linked governance networks, the normative systems can be fragmented and intertwined. The legitimacy of a legal framework is never definite as more powerful actors are able to contest the validity by appealing to another system, which may be based on a privileged or exclusive group (Picotto 2007: 260). In any case, as we have seen above, also the non-littoral circumpolar states stress the importance of Arctic hydrocarbon development, even though all national Arctic strategies (except the Norwegian) were published after the Ilulissat Declaration.

4. Case Study: Arctic Offshore Hydrocarbon Development

Since the history of southern explorers entering the Arctic and its following colonization, the southerners perceived the Circumpolar North as a natural resource deposit and as a frontier (Mease and Coates n.d.). Indeed, the Arctic region is rich in numerous natural resources: Renewable, as well as non-renewable ones. About 30 per cent of the world's land area is covered by forest. More than half of the world's forest, covering 17 per cent of the overall land area, is Arctic boreal forest, which is currently the largest natural forest on this planet. Fishing and agriculture data from 2002 reveal that 7.26 Million tonnes of the world catch of fish originated in the Arctic, which represents 10 per cent of the world's total catch of fish. Approximately 3.2 per cent of the world's gold production has its origins in the Arctic, mainly from the territory of the Russian Federation, but also from Alaska, Canada, Finland, and Sweden. The Russian Arctic is also the origin of 21 per cent of the world's gem-quality diamonds, and 23 per cent of the global industrial diamonds, whereas 15 per cent of the world's gem-quality diamond extraction takes place in Canada (SDWG 2009: 8 f.). The Arctic is also rich in hydrocarbons, both onshore and offshore. While Arctic hydrocarbon exploitation already has a history dating back to the 1920s, it is generally expected that hydrocarbon activities in the Arctic will continue to grow, and especially offshore deposits promise vast production increases. On the other hand, even though the Arctic Council is promoting hydrocarbon exploitation in order to achieve sustainable development, while the potential of other Arctic energy resources, including renewables, has been studied significantly less by the Arctic Council's bodies (Ibid.: 11).

4.1. Importance of Hydrocarbons in the Arctic

Oil and natural gas extraction already contributes substantially to the northern value added. Exploitation of natural resources counts for a significant share (31 per cent) of the Arctic's economy, which totaled USD-PPP¹⁸ 225 billion in 2003; this is comparable

18 \$ US-PPP: PPP stands for 'purchase power parity' and means, that the currencies have been converted to make them better comparable.

to the GDP (Gross Domestic Product) of Malaysia or Switzerland at that time. Approximately 24 per cent (USD-PPP 53 billion) of the Arctic's gross product is based on the hydrocarbon extraction (Duhaime and Caron 2006: 17). The Arctic's share on the world's petroleum production is 16.2 per cent, whereas the share of natural gas on the global market is more significant: 25.5 per cent of natural gas origins in the Circumpolar North, while the share of oil accounts for 10.5 per cent of the global market (Lindholt 2006: 27). Despite voices (that lately abated, due to new technological progress) claiming that we might have already reached “peak oil,” the Arctic still has the potential deposits to maintain its role as an important actor in the hydrocarbon production or to gain an even bigger share: The United States Geological Survey estimates that the area north of the Arctic Circle holds approximately 30 per cent of the world's undiscovered natural gas and 13 per cent of its undiscovered oil (Gautier et al. 2009: 1175). A share of estimated 84 per cent of this undiscovered oil and gas, representing about 90 billion barrels of technically recoverable oil and natural gas, is believed to be offshore (Bird et al. 2008).

Since existing reserves are depleting, international political factors, including energy demand from emerging economies as well as energy security for developed countries, call for exploration of new resources. On account of the upstream structures of the highly market-adjusted hydrocarbon industry, the discovery of giant fields is necessary to compensate for the depletion of old oil and natural gas fields (Bridge 2011: 318). Such giant fields are expected to be in the High North (see above), but they could not have been exploited in the past due to lack of technological knowledge, since “[t]he Arctic remoteness and extreme environments such as permafrost and sub-sea ice gouging require engineering practices not used in other regions” (AMAP 2010: 2_256). Thus, national governments as well as the hydrocarbon industries are interested in exploiting the Arctic's fossil resources. Several big oil companies are investing in the region. While Statoil is already using its cold-weather expertise in the Barents Sea, also other big players show interests in using and developing their technologies for the cold (like BP, Royal Dutch Shell, Exxon Mobile, et cetera; cf. Hargreaves October 25th, 2006). However, even for the big players in hydrocarbon business, the developing costs are difficult to stem, since the operating costs in the Circumpolar North are much higher than in most other regions because of the special, regional characteristics:

Working conditions are harsh and challenging. Infrastructure is often limited or

non-existing prior to state of oil and gas activities. Environmental conditions include extremely low temperatures and extended darkness in winter, permafrost, sea ice, and changing climate. (AMAP 2007: 33)

Oil and gas activities in the Arctic vary over time and across regions. While in some areas the activities have already peaked, in others they are still increasing, or changing from an exploration phase to development or from production decline to shut down (AMAP 2010: 2_251). To date, hydrocarbon production in the Arctic has mainly been carried out in Alaska (USA) and northern Russia, although also Canada and Norway carry out some production in the High North. Finland, Greenland, Iceland, and Sweden has no domestic oil and natural gas production and depends on imports (Bankes 2011: 102). While so far onshore production of oil and natural gas is dominating the hydrocarbon activities, offshore exploration and exploitation is expected to increase significantly. Nevertheless, due to the high development costs, currently carried out and planned projects in the Arctic maritime area are limited in extent, and are rather based on predicted hydrocarbon potentials than on proven reserves of oil and natural gas (SDWG 2009: 7 and 13).

4.2. Arctic Offshore Hydrocarbon Development

Note: Parts of the research results in this and the following sub-chapter (4.3.1) have also been published in: K. Hossain, T. Koivurova and G. Zojer (2014): Understanding risks associated with offshore hydrocarbon development. In: E. Tedsen, S. Cavalieri and A. R. Kraemer (eds.): Arctic Marine Governance: Opportunities for Transatlantic Cooperation. Berlin, Heidelberg: Springer, pp. 159-176.

Interest in exploiting the Arctic's energy resources is not a new phenomenon, only the magnitude is changing. Oil and natural gas extraction in the Arctic started after the First World War, though it was the second half of the twentieth century that witnessed a rapid growth in related activities. Both energy industries and Arctic states have since discovered hydrocarbon exploitation in the Arctic as being increasingly attractive. Nowadays, fossil resource extraction in the Circumpolar North is a major economic driver in many regions (AMAP 2007: 1). Due to an estimated increase of global oil

need,¹⁹ and an even stronger growing natural gas demand,²⁰ it is predicted that hydrocarbon extraction will continue to expand in the future.

A number of reasons can be determined behind this trend: First, the oil price on the global market is predicted to remain on a relatively high level. Thus, even in regions with high development costs, investment in hydrocarbon activities can be economically profitable. Second, with continued advances in ship design, drilling technologies, and equipment, Arctic resource exploitation may become increasingly feasible. Third, the Arctic can be viewed as a relatively safe region, compared to many other hydrocarbon-rich regions because there are no on-going conflicts that would potentially disrupt production.²¹ Nevertheless, drilling in the offshore Arctic is more expensive than in most other regions in the world. The harsh conditions in the High North require the use of advanced technologies and enhanced safety measures, which makes Arctic oil and natural gas drilling to an exclusive venture:

The high cost of doing business in the Arctic suggests that only the world's largest oil and gas companies, most likely as partners in joint venture projects, have the financial, technical and managerial strength to accomplish the costly, long-lead-time projects dictated by Arctic conditions. (Hong 2012: 23)

The investment risks in the High North are considered to be far greater than in other regions, which is one of the reasons that Arctic hydrocarbon extraction remains to date in the early phase of development and with limited activity. The short drilling season due to sea ice onset, and in some cases tighter environmental regulations than in other regions, could further contribute to a slow development of new fields.

19 The International Energy Agency (IEA) predicts in a current policies scenario, as well as in a new policies scenario (with more oil use efficiency and switching to other fuels), an absolute global primary oil use increase (e.g., reaching 107 MMb/d in 2035 in the current policies scenario, compared to 84 MMb/d in 2009), even if the share of oil in total primary energy demand is expected to decrease. (IEA 2010b: 102)

20 For natural gas, the IEA expects an absolute increase in demand as well as an increase in the share of total primary energy demand in all scenarios (e.g., in the current policies scenario, the share grows 1.6 % per year, attaining 4.9 Tcm in 2035, compared to 3.2 Tcm in 2008). IEA 2010b: 180)

21 This fear stems from the October 1973 world oil crisis, when Arab members of petroleum producing countries announced a ban on oil shipment to countries supporting Israel in the 1973 Arab-Israeli war. (EIA n.d.)

4.2.1. Alaska, USA

More than half of the current Alaskan oil and gas production rate of approximately 0.55 Bb/d²² is extracted onshore, in the Prudhoe Bay area (AOGCC 2012). The most important offshore oil fields north of Alaska, that are exploited from offshore facilities,²³ are the fields Endicott, Point McIntyre, Oooguruk, and Northstar. From the Northstar field, oil is transported to the coast by the first Arctic sub-sea pipeline that went online, and which started to operate in 2001 (Piepul November 2nd, 2001). These fields are, however, in relatively shallow waters and near-shore. Thus, the drilling operations do not take place from offshore facilities, but from causeways or infrastructure on artificial islands (ADNR 2009: 6-17). For the Arctic region, this means that the operations are carried out in relatively easy conditions, which are less expensive than drilling from offshore platforms. The results of exploratory activities in the past as well as recent surveys, suggest that there are promising chances to discover large volumes of oil and natural gas in Alaska's Beaufort and Chukchi Seas. The USGS has estimated that 72,766 MMboe of undiscovered oil-equivalent are located in the Alaskan Arctic (Bird et al. 2008). After the Deepwater Horizon disaster in the Gulf of Mexico in April 2010, additional concerns led to a temporary moratorium on deep water offshore drilling in the Outer Continental Shelf, which in turn led to tighter regulations (IEA 2010b: 127). In the US Department of Interior's *Five Year Outer Continental Shelf Oil and Gas Leasing Program 2012-2017*, new leasing sales for the Beaufort and Chukchi Seas have been shifted toward the end of this five-year period. Shell Oil however already had valid, pre-existing leases from before, and their planned operations have not been canceled: They got permission to initiate drilling in 2012. However, the company was forced to postpone the completion of wells for another year, since during testing a spill containment dome failed (Krauss September 17th, 2012). In February 2013, the company announced a suspension for their offshore drilling program for the year 2013. While development of new oil and natural gas resources off the Alaskan shore might compensate for a current decline in the Alaskan production (cf. EIA 2012), the US currently benefits from unconventional oil and natural gas extraction.

22 Average daily production rate for September 2012.

23 Other offshore fields are extracted from land, using directional drilling technology. (ADNR 2009: 6-17)

4.2.2. Russian Federation

The Russian Federation advanced to one of the world's leading oil and natural gas producers, and brought 10.28 MMb/d oil and 670 Bcm natural gas onto the market in 2011 (Watkins 2012). The Russian Federation holds the world's largest natural gas reserves, which are estimated at a volume of 474.6 Tcm. The majority of Russia's calculated 88.2 billion barrels proven oil reserves (BP 2012) are located in Western Siberia, where the current production rates are expected to decline. Thus, "a new generation of higher-cost fields need to be developed, both in the traditional production areas of Western Siberia and in the new frontiers of Eastern Siberia and the Arctic" (IEA 2011a: 6), in order to maintain the high levels of production. The USGS estimated hydrocarbon deposits to the amount of 132,572 MMboe in the West Siberian Basin and 61,755 MMboe in the Eastern Barents Basin (Bird et al. 2008). With these prospects, the Russian Federation is in a good position to remain an oil and natural gas supply leader. Nevertheless, the high exploration costs in the Arctic delayed the utilization of many of resources in the High North. For example, the Shtokman project, one of the world's biggest undeveloped gas fields, and which is located in the Barents Sea, had to be stopped after the project development has been negotiated for several years. Even though the project had already induced high investments, it had to be put on hold because of the immense development costs (Chazan August 31st, 2012). Also the operation start of the Prirazlomnaya platform in the Nenets Autonomous Okrug has been postponed several times, although it was thought to become "the first ever offshore field in the Russian Arctic put in production" (Pettersen May 24th, 2012). Nonetheless, an agreement between Norway and the Russian Federation on the demarcation of their maritime boundaries in the Barents Sea in 2011 increased the region's stability, and opened the door for new exploration in both Norwegian and Russian waters (IEA 2011b: 5).

4.2.3. Norway

Norway produced 2.16 MMb/d crude oil in 2010. The estimated natural gas production in 2009 accounted for 105.9 Bcm, of which 3.4 Bcm originated from the Snøhvit LNG plant (IEA 2011b: 13) in the Barents Sea. The Snøhvit gas field is so far the only field in the Norwegian High North that is in operation. The Goliat field (also in the Barents Sea)

was scheduled to start production in 2014, however, the project is behind schedule (Eni Norge n.d.). Hydrocarbon exploitation has been the main driver of Norway's economy since initial gas field discoveries have been made there in the 1970s. So far, the majority of the hydrocarbons have been extracted from offshore platforms off Norway's western coast, on the Norwegian Continental Shelf. However, since 2002 the oil production has declined, and if no significant new discoveries should be made, the Norwegian oil production may already have peaked (IEA 2011b: 3 ff.). Nevertheless, sufficient deposits to compensate for the decline are anticipated to be found in Arctic waters: The USGS estimated undiscovered 7,322 MMboe in the Norwegian Margin and 6,704 MMboe in the Barents Platform (Bird et al. 2008).

4.2.4. Canada

When combining both conventional and non-conventional oil, Canada holds the world's second largest resources behind Saudi Arabia, with a rising production which is mainly due to the production of unconventional oil. The resources are estimated to be 267 billion barrels (IEA 2010a), and for 2012 the production rate was estimated to be 3.45 MMb/d (NEB 2012a). Canada furthermore has an estimated production rate of 145.7 Bcm of natural gas, making it the world's third largest natural gas producer in 2012 (NEB 2012b). Approximately 98 per cent of this gas originates in the Western Canada Sedimentary Basin and onshore, while only 2 per cent of natural gas is produced offshore in Atlantic Canada (IEA 2010a: 13). In the Canadian High North, the history of hydrocarbon developments started in the 1960s. First substantial and feasible discoveries, such as the Drake Point gas field, were made in the Beaufort-Mackenzie area and on Canada's Arctic islands. Until the late 1980s, 65 fields were discovered, before activities started to decline (McCracken et al. 2007) because of problems related to shipping, unsettled land claims, and tight environmental regulations (AMAP 2010: 2_67).

The first circumpolar offshore wells were drilled in the Beaufort Sea, in the 1970s, but until production started in 1992 from the (in the mean time abandoned) Cohasset Panuke, no further field development took place. However, in recent years hydrocarbon activities have increased again: Currently oil and natural gas is produced in the regions

Nova Scotia (Sable project, 235,067 b/d²⁴ and Deep Panuke, 8.5 MMcm/d²⁵), Newfoundland, and Labrador²⁶ (Hibernia, Terra Nova, White Rose, and its satellite North Amethyst; together: 271,791 b/d; CNLOBP 2011). However, the Canadian Arctic is currently only contributing minor shares to the state's overall oil and natural gas production. The potential though is huge: The USGS estimated undiscovered resources of, for example, 17,063 MMboe in West Greenland-East Canada and 5,108 MMboe in the Amerasian Basin (Bird et al. 2008).

4.2.5. Greenland and Faroe Islands (Kingdom of Denmark)

Although hydrocarbon exploitation was first initiated in Greenland in the early 1970s, until present no economically feasible amounts of oil or natural gas have been discovered. Nonetheless, Greenland's Bureau for Mining and Petroleum expects (based on Bird et al. 2008) vast amounts of undiscovered oil and natural gas resources off Greenland's coasts: 17 BBoe are estimated to be Northwest off Greenland and 31.4 BBoe Northeast off Greenland (BMP 2011: 17). The Self-Government of Greenland is “now aggressively trying to identify oil and gas reserves” within its jurisdiction (Bankes 2011: 122), and is furthermore actively inviting foreign partners to invest in hydrocarbon developments, in order to benefit from the revenues. So far the exploration results have been promising: From 2010 to 2011, the British company Cairn Energy has finished eight wells in numerous basins and discovered reservoir-quality sands in the Atammik block (BMP 2012: 18). Off the Faroe Islands no discoveries have yet been made.

4.2.6. Iceland

Also Iceland does not have any fossil resource production yet, but is hoping that exploration activities off the Jan Mayen area might prove producible deposits (Bankes 2011: 102).

24 Average of monthly production rates in 2011. CNSOPB (Canada-Nova Scotia Offshore Petroleum Board), http://www.cnsopb.ns.ca/pdfs/production_report.pdf. Accessed: July 5th, 2012.

25 According to the operator, Encana, the project has reached full production at the end of 2013, with a production rate of 300 Mmcf/d. (Passut December 18, 2013)

26 Following the delineation of the Arctic Human Development Report (AHDR), parts of the North Atlantic Ocean, including the Labrador Sea, belong to the Arctic marine area. (Young and Einarsson 2004; see also Figure 1)

4.3. Impacts of Arctic Offshore Hydrocarbon Development

As we have seen, the Arctic Council promotes oil and natural gas exploitation as means to accelerate the region's wealth by creating job opportunities and generating revenues from the export of natural resources. In the present, fossil resource extraction already does contribute substantially to the Arctic economy. However, it is also well known that hydrocarbon development entails risks, which are impossible to completely eliminate as “accidents are likely to occur, even under the most stringent control systems” (AMAP 2007: 36); And the regions that are prone to these risks stretch beyond the areas in which oil and natural gas is actually produced. Thus, some regions in which hydrocarbon extraction is based can economically benefit from fossil resource production, while other regions might have to deal with the environmentally negative consequences or not being able to gain economic benefits. These facts given, the AMAP concludes that “[s]ome people will receive greater benefits and others will experience greater negative effects” (AMAP 2007: vi).

Before looking at the advantages and disadvantages of hydrocarbon development it should be noted that oil and natural gas activities go through different stages. The four main stages are: a) geological and geophysical survey (e.g. seismic operations), b) exploration (drilling in little known areas to gain more information on the bedrock), c) development and production (expanding drilling activities and extracting hydrocarbons), and d) decommissioning (plugging and abandoning wells of exhausted hydrocarbon reservoirs). In each stage various activities are carried out, all of which impair associated environmental impacts, whereas the development and production phase is considered to have the most intense impacts (Casper 2009: 832).

4.3.1. Risks Associated with Offshore Hydrocarbon Extraction

Mass-scale utilization of natural resources usually has adverse environmental impacts. Nevertheless, technological advancements can reduce the impacts of hydrocarbon activities. New technologies were introduced also in the Arctic, after oil and natural gas extracting companies had (re-)discovered the Arctic as a place for exploitation. Old equipment eventually got replaced, and recently introduced modern knowledge and technology has the potential to contribute to contamination mitigation (AMAP

2010: 2_255). The Arctic Offshore Oil and Gas Guidelines of the Arctic Council encourage the usage of best knowledge and best available technologies (PAME 2009: 31 ff.). Nonetheless, hydrocarbon development in the Arctic maritime area is – like everywhere else – connected with many risks, which could lead to a severe devastation of the environment. However, due to the special characteristics of the Arctic, the ecosystems are more vulnerable than in most other regions.

The most significant threats of oil and gas activities are risks and potential impacts of oil spills. “[T]he Arctic has high sensitivity to oil spill impacts and the least capacity for natural recovery” (PAME 2009: 8). However, not only are accidents a threat to the environment, but also normal operations have harmful impacts. So far, there haven't been any big oil spills through drilling activities in the High North, but with growing hydrocarbon development, the risk of having such an event significantly rises. The devastating effects of large oil spills can be seen, for example, from the Exxon Valdez disaster in the Alaskan sub-Arctic in March 1989, in which an oil tanker struck a reef; Or from the Deepwater Horizon accident in the Gulf of Mexico in April 2010, in which the Blow Out Preventer failed and an explosion killed several workers on the rig. In both cases large quantities of oil have been discharged. The Deepwater Horizon accident made clear that even under much more favorable conditions than in the Arctic, it may take a long time until the leakage of an open oil well can be brought under control.²⁷ If such an accident would occur in Arctic waters, the consequences might be much more serious, since the Arctic conditions make it more difficult to respond. Beside bigger the more substantial difficulties in embanking such an incident, the flora and fauna in the Arctic is more fragile than in most other areas in the world.

The marine environment in the High North has a unique seasonal shoreline and oceanographic changes: The shore consists of ice shelves, ice-foot features, glacier margins, and tundra coast; the unique seasonal oceanographic and shoreline changes are due to open water (no ice), freeze-up (ice is forming), frozen conditions (solid), and break-up (mature ice is melting; EPPR 1998: 1-3 and 2-4). In the case of a large-scale

27 In case of the Deepwater Horizon accident, it took 3 months to drill a release well, that allowed to abandon the original bore hole. The catastrophe also illustrated, that accidents can include unforeseen circumstances: On the sea floor, the *blow-out preventer* (BOP), which is a security installation, failed. Because the well operator was not prepared for such a case, new equipment needed to be designed only after the accident occurred.

oil spill in the Arctic, the marine environment would undoubtedly suffer from severe adverse impacts. These impacts would have significant long-term consequences for the region's species and ecosystems, and affect flora and fauna for decades. While oil spills are visible and have numerous direct impacts on the Arctic environment, leaking natural gas (which often consists of high concentrations of methane) mainly contributes to climate change and ozone depletion (AMAP 1997: 151).

4.3.1.1. Oil Spill Pollution

Having an oil spill in the Arctic offshore would have both short and long term adverse effects on the aquatic environment. Oil spills in the marine Arctic could be trapped under ice and spread over hundreds if not thousands of kilometers, and are difficult to contain (AMAP 1997: 152 and AMAP 2007: 24). However, an offshore oil spill also endangers onshore and near-shore ecosystems; In fact, coastal areas have a higher sensitivity to oil pollution than the maritime environment (Cairn 2011: 141). Oil spills and releases can occur at several stages of hydrocarbon activities: They could be the result of a blowout during the exploration or the development and production phase; Oil could leak during transport from sub-sea pipelines, from on-land storage tanks or from pipelines traveling to water; Oil could get released from accidents involving oil transportation vessels or vessels carrying fuel oil (Casper 2009: 241, also AMAP 1997: 148); Yet there is minimal experience in the termination of oil and gas operations in the Arctic, however, also decommissioning poses risks of potential releases of numerous pollutants including oil, causing further disturbances (AMAP 2007: 36).

Intermittent oil spills (such as from tanker accidents) could occur quickly, and the pollution might remain locally. Through persistent oil spills (such as from blowouts or through leaking pipelines), oil gets released continuously and may spread over a large area if it cannot be embanked on time. Oil spills occurring at drilling platforms usually last for longer periods of time. The results would be immediate and drastic consequences to the environment and wildlife within the marine area, depending on factors such as the type of crude oil spilled, environmental conditions, time of year, currents, and more (e.g. for the impacts of the Deepwater Horizon accident see Belanger et al. 2010: 13).

The impacts of spilled oil, petroleum by-products, and dispersants used during clean-up operations are of great concern for marine organisms.²⁸ Even under more favorable conditions, and with greater infrastructure at hand than in the Arctic, oil spills are difficult to respond to. For example, the Exxon Valdez accident left a severe footprint in the entire region because a huge amount of oil had been released in a short time, and spread gradually along the coastline (Pew Environment Group n.d.). Twelve years after the accident, a survey revealed that still more than 55 tonnes of Exxon Valdez oil remained in the intertidal sediments of Prince William Sound, indicating a yearly decay rate of 20 to 26 per cent.²⁹ When in 2010 oil from the Deepwater Horizon accident in the Gulf of Mexico was released, oil leaked into the water column for over 90 days, and estimated 4.9 Million barrels oil were discharged into the marine environment (Muhling et al. 2012: 679), causing severe devastation to a large oceanic area. Despite extensive clean-up efforts, official estimations suggest, that 26 per cent of residual oil remained in the seawater, whereas 24 per cent was naturally or chemically dispersed (Maltrud et al. 2010: 6). The direct exposure to oil, its by-products, and dispersants result almost certainly in heightened mortality rates for many organisms. Even though the long-term effects of the incorporation of oil into marine food webs are yet not fully understood (Muhling et al. 2012: 686), they would certainly cause a significant contamination.

4.3.1.2. Oil and Natural Gas Blowouts Risks

During the exploration phase, when wells are drilled into less known geology, the risk of a blowout is at its maximum. However, blowouts can happen any time during the drilling phase. Even though blowouts do not occur very often, they represent a possible source of serious oil spills. Statistics from the US Outer Continental Shelf indicate a rate of 4.1 blowouts per 1000 (0.41 per cent) wells drilled for the period from 1971 to 1998. Surprisingly, the rate of blowouts has been constantly higher in the years after 1998, and peaked at 7 blowouts per 1000 (0.7 per cent) wells in 2007. It makes a difference though, whether a blowout occurs from a natural gas or from an oil well: Gas blowouts

28 After the Deepwater Horizon accident, dispersants have been used extensively to fight the oil spill. For the impacts of oil dispersants on the marine organisms, see for example Muhling et al. 2012.

29 “A 2001 survey of intertidal PWS shorelines revealed 55,600 kg of often little weathered, Exxon Valdez oil in intertidal subsurface sediments and a perhaps equal mass of high-intertidal degraded surface oil and lower-intertidal, minimally weathered subsurface oil.” (Peterson et al. 2003: 2082)

tend to cease due to collapsing or clogging of the bore hole,³⁰ while oil is often ejected along with gases and water (AMAP 2010: 2_257).

4.3.1.3. Oil Pollution From Transportation

Most spills, however, occur at the terminals, where tankers get loaded or unloaded, while spills from tanker are the largest threats during shipping (AMAP 1997: 149). Due to the growth of hydrocarbon activities, also the volume of tankering is expected to increase significantly, which too contributes to a heightened risk of oil spills at sea. If an exploration well is (also economically) successful, the development and production phase begins, and the hydrocarbons need to be transported to on-land production facilities. This is either done with shipping vessels, or by transporting the hydrocarbons via sub-sea pipelines. Hydrocarbon transportation in the Arctic is more difficult than in most other areas: Shipping is more dangerous because of icebergs, snow cover, freezing, (partly) ice-covered sea, and strong winds; Pipelines on the other hand are endangered by ice keels, which could damage sub-sea infrastructure (Wolf 2007: 37, also Nuka Research and Pearson Consulting 2010: 34 f.).

4.3.1.4. Oil Spill Clean-up Operations

Clean-up operations in the Arctic would be very difficult because of the unique environmental conditions, including the presence of sea ice, extended periods of darkness, reduced visibility, severe cold, and extreme storms (Casper 2009: 833, also SLR 2011). The *Arctic Oil and Gas Activities Assessment* report stresses that not all Arctic countries have proper oil spill response plans: In some states, infrastructure to combat oil spills are insufficient, and modern hydrocarbon spill detection and monitoring systems are absent. As a result of the remoteness of the operation areas, the response times in case of emergencies are long, and, additionally, there is an absence of equipment for working in ice conditions. This, to only name a few of the shortcomings in oil spill response (AMAP 2010: 2_256 f.). Furthermore, even in the open sea, ice movement could hamper some clean-up operations (ACIA 2004: 11). Therefore, the success and duration of efforts to clean up after an oil spill would highly depend on the

30 Statistics from the US Outer Continental Shelf show that sixty per cent of gas blowouts cease within less than one day, and only ten per cent last longer than for a week. (AMAP 2010: 2_257)

time of the year and the characteristics and on volumes of the spill. Under Arctic conditions, clean-up operations might be impossible at least one day out of five because of bad weather or present sea ice (Weber August 1st, 2011).

One of the most important methods to combat an offshore oil spill is in-situ burning of released oil (cf. AMAP 2010: 2_257, see also Cairn 2011: 86 ff.). This method, however, is limited to weather conditions with winds speeds less than ten meters per second, while winds stronger than this threshold occur frequently in the High North. Spills under sea ice or in broken ice are the most difficult to respond to, and cannot be treated efficiently (NRC 2003: 100; also AMAP 2007: 2). Due to the weather and ocean conditions, utilizing conventional clean-up methods might not be possible for extended periods of time: A study for the Beaufort Sea suggests that during June, the most favorable month, clean-up is possible at eighty per cent of the time; Over the summer the conditions deteriorate until October, when clean-up might only be possible at thirty-five per cent of the time; From freeze-up until the spring melting of the sea ice (October until June), clean-up operations are impossible (SLR 2011: 23).

4.3.1.5. Impacts of Accidents From Arctic Hydrocarbon Activities on the Maritime Ecosystems

The Arctic ecosystems are more vulnerable than ecosystems in other areas in the world. The Circumpolar North is characterized by extreme seasonal changes, which leads to extensive animal migrations (AMAP 2007: 24). Due to shorter season lengths also the time for a potential recovery of the ecosystem, would be longer. Due to the sparse Arctic biodiversity, most organisms in the Arctic depend on limited sources of food. Ecosystems have certain keystone species, which are of utmost importance for the whole food web to function: The loss of a single keystone species could reduce the diversity significantly.³¹ In the maritime Arctic, polar bears and walrus, for example, are considered keystone species (AWL n.d.).

In the High North, the most likely species to be affected by an oil spill are fur-bearing and feathered animals, as well as fish stocks (Carpenter 2009: 240). Particularly

31 Even though in another environment than the Arctic, an experiment by the ecologist Robert Paine in 1966 showed, that after removing one species from an ecosystem, only within two and a half years, eight out of fifteen species have extinct. (Washington 2013: 8)

vulnerable to oil spills are animals during seasonal aggregations (e.g. seabirds in breeding colonies, marine mammals in open water areas surrounded by sea ice, or fish at spawning time). Even small amount of oil can affect species in habitats near the shore (Wolf 2007: 37, also Cairn 2011: 141 ff.).

Fish can take up oil components into their tissues after being exposed to sediments or water, as well as through food intake. Even though oil is toxic to fish, they will only rarely take up lethal concentrations. Some fish might be able to metabolize and excrete oil pollution. Different species have variable sensitivity to oil exposure, with adult fish from some species, such as salmon and cod, being able to avoid oil (Mosbech 2002: 79 ff). Fish eggs and larvae are more vulnerable to oil pollution because they often develop near the surface where a contamination is more likely to occur, and because they cannot avoid spilled oil (AMAP 1997: 153). Hydrocarbons poison larvae of a number of marine species, which might have lethal consequences to them. Thus, oil pollution can contribute to a reduction of fish stocks (Lesikhina et al. 2007). Larval growth rates, swimming and feeding behaviors may be affected by even low levels of dissolved hydrocarbons (Muhling et al. 2012: 679). Some fish species of the High North spawn under sea ice during winter time; If an oil spill would occur in such spawning areas, a years recruitment to the population could be substantially reduced (AMAP 2007: 25).

Migratory seabirds are particularly vulnerable to oil spills when they are concentrated in their breeding colonies and in their moulting and wintering areas (AMAP 2007: 34). Seabirds are among the immediate indicators of environmental and wildlife damage after oil spill accidents (AMAP 1997: 153) because eggs, habitat, and food supplies might become contaminated (Montevecchi et al. 2012: 218). Some birds that feed at sea for parts or throughout the year are particularly sensitive to oil spills (Mosbech 2002: 96). Exposure to oil causes irritation of eyes, destroys plumage, and mats feathers. The latter hamper birds from flying and decreases the insulation capability, which might cause death from hypothermia. Especially seabirds that live in the cold water are vulnerable to oil pollution. Long-term oil exposure might reduce birds' reproductive capacity (AMAP 2007: 24 ff).

Ice-free waters are the primary habitat of most marine mammals. Aquatic mammals are generally less sensitive to oiling and might be able to avoid oil. Bowhead whale, beluga, narwhal, walrus, and several species of seals are migratory species and move northward in spring; prior to or during this migration, these mammals give birth. Confined in ice during wintering and migrations, they are dependent on ice openings (for breathing) and thus could be vulnerable to oil spills and disturbances. During the period when the sea is frozen, the most commonly appearing species in the Arctic maritime area are polar bears, seals, and walrus. Fur-bearing marine mammals, such as polar bears, seals, and sea otters are more vulnerable to oil spills than other sea mammals: When the fur gets contaminated with oil it mats and consequently loses its ability to repel water and to retain heat, which is crucial for the animals's survival. Furthermore, oil is toxic, and studies suggest that ingestion might result in lethal poisoning (Boertmann and Aastrup 2002: 113, AMAP 1997 153 f., and AMAP 2007: 24 f.). In addition, oil contamination can hamper the ability to swim and cause irritation to animals' skin and eyes (AMAP 1997: 153 f.). Most seals and whales, which rather rely on blubber than on fur for insulation (Young 1989: 251), are usually less vulnerable to oiling (AMAP 2007: 24), however, they may take up toxic concentrations of oil through the food chain or by inhaling (Boertmann and Aastrup 2002: 113 ff.). Furthermore they can get trapped in ice during migration, when "oil spills and contamination resulting in loss of their food supplies or critical habitat" (OGP 2002: 9) pose threats.

4.3.1.6. Indirect and Other Impacts of Arctic Oil and Natural Gas Exploitation

Beside pollution from oil spills, also regular operational activities have a number of adverse effects on the marine environment. Near-shore hydrocarbon extraction is often carried out from gravel islands or causeways, which can disrupt fish migrations and near-shore water flow. Ice habitats are affected by the use of ice-breakers, which also create considerable noise (AMAP 2007: 25, cf. also NRC 2003: 98 ff.). Noise pollution can, furthermore, originate from air traffic, shipping (of oil or equipment), and from seismic activities. This can frighten animals, intercept feeding schedules, or cause displacement. Both marine mammals and fish are affected by noise pollution, which can extend tens of kilometers. For example, bowhead whales off the Alaskan Beaufort Sea have been observed to change swimming directions in response to noise that originated from seismic activities in a distance from 30 kilometers. Mammals show noise

avoidance behavior and move away from industrial noise, although this migration patterns seem to be only temporary (AMAP 2007: 25). However, it can cause fragmentation of habitats. Due to the fact that mammals often rely on their hearing senses when they are hunting for prey, man-made noise might disturb regular food intake. Growing marine traffic from hydrocarbon activities will not only disturb wildlife, but might also increase the number of bird and animal strikes (AMAP 2007: 10 and Wolf 2007: 37).

Hydrocarbon activities may release considerable amounts of gases into the air, such as from power generation, flaring, venting, well testing, leakage of volatile petroleum components, supply activities, or shuttle transport. These discharges both contribute to greenhouse gas emissions and generally increasing the amount of pollutants, causing, for example, acidification. Discharges of drill cuttings with oil and chemicals could have adverse effects on sea floor flora and fauna, reducing their abundance and diversity in the close vicinity of installations. Discharges of produced water and chemicals have potential for acute effects on marine life too (PAME 2009: 8). Thus, even without the occurrence of devastating accidents, activities related to oil and natural gas extraction reduce the wilderness character of a region, and cause adverse effects on the environment.

4.3.1.7. The Loop of Fossil Resource Exploitation and Climate Change

While the melting of the Arctic sea ice allows for offshore hydrocarbon extraction in the High North, the production of oil and natural gas also contributes to and thus further accelerates, climate change. The construction of hydrocarbon infrastructure (offshore installations, gravel islands, infrastructural development, transportation facilities, industrial activities, etc.) and the appendant shipping will lead to significant new greenhouse gas emissions (cf. Hossain 2010: 141) and increase the amount of black carbons in the region. While worldwide gas flaring only contributes to 3 per cent of the global black carbon emissions, gas flaring originating from the Arctic's hydrocarbon extraction is responsible for 42 per cent of the regional black carbon concentration (Stohl et al. 2013), adding to the albedo effect.³² The utilization of the produced Arctic

32 The albedo effect describes the phenomenon that the melting and retreat of snow and ice (both on land and at sea) reveal more darker surfaces, which reduce the planet's ability to reflect sun light, but instead to increasingly absorb the solar energy. The albedo effect does accelerate the warming of the

hydrocarbons will furthermore hamper the efforts to mitigate climate change enforcing emissions: Greenpeace estimates, that a barrel of crude oil produces 300 kilograms of carbon dioxide after refining and combustion processes. If the offshore circumpolar hydrocarbon resources (90 billion barrels according to Bird et al. 2008) are all utilized, they would take account for 27 billion tons of carbon dioxide emissions. This amount is comparable to the current world's total annual emissions (Greenpeace August 23rd, 2010).

4.3.2. Effects of Climate Change on the Circumpolar North

Some of the impacts of the warming in the High North have effects not only on the circumpolar region, but on the global climate as well, reflecting then back to the Arctic region: For example, the albedo affect further accelerates the planet's warming and aggravates the impacts of climate change in the Arctic (Weller et al. 2005: 1005); The melting of sea ice expands oceans' volumes, leading to a rise of sea levels, which might slow down ocean circulation and thus changing climate patterns, also affecting the Circumpolar North (ACIA 2005: 32); Thawing permafrost is expected to endanger infrastructure but also to release more greenhouse gases (mainly Methane, which has more than 20 times of the warming influence of carbon dioxide), further accelerating climate change (Anisimov et al. 2007: 662).

The changing climate does have numerous impacts on the region. For example, the increased opening of the Arctic sea could intensify coastal erosion and the risks of floods (ACIA 2004: 84). Greenhouse gases affect stratospheric temperatures, which slows down the recovery of the ozone layer over the Arctic, leading to increased UV (Ultraviolet) radiation,³³ and thus adding to the risks of skin cancer (ACIA 2004: 46 ff. and 98 ff.). Climate change in general leads to vegetative changes. In the Arctic, the tree line and other plants are shifting northward, thus also animals migrate further north.

However, “[w]hether a particular impact is perceived as negative or positive often depends on one's interest” (ACIA 2004: 8). Trees in the High North might grow bigger,

planet earth.

33 Young generations are expected to receive 30 per cent higher UV doses than prior generations. (ACIA 2004: 102)

being able to absorb larger quantities of carbon dioxide. The vegetation shift toward the North can allow an extension of agricultural activities, while it might threaten traditional economic activities, such as reindeer herding. Hunting and gathering is becoming more difficult because of changes of the Arctic's biophysical characteristics and the decrease of weather predictability (ACIA 2004: 8 and 11). Since informal economies are still important to many people in the Arctic, it challenges the way of life of many northern inhabitants (cf. Duhaime et al. 2004: 69). The warming of the Arctic marine area could make northern fishery industries more productive, while some marine species that depend on sea ice, such as polar bear, seal or walrus, are threatened to extinct³⁴ (ACIA 2004: 14). Anyways, animals will be increasingly stressed and new diseases and pests could spread. Climate change leads, however, to an opening of the maritime Arctic and allows the use of new shipping routes as well as Arctic offshore hydrocarbon exploitation. Nevertheless, increased economic activities due to fossil resource extraction might lead to:

Dislocation, stress, crime, substance abuse, the introduction of diseases, and other problems [...] into previously isolated areas. They may be offset by other social, economic, and health-care benefits, but that judgment is likely to vary by individual, by circumstance, and by region, and cannot be predicted accurately. Furthermore, detriments and benefits are unlikely to reach everyone in the same way. Some people will receive greater benefits and some will experience negative impacts. (AMAP 2007: 36)

Due to the strong influences of climate change on the Arctic's environment as well as on its inhabitants, the Arctic Council has given a lot of attention to climate change (cf. chapter 3.3.5).

4.3.3. Socio-economic Impacts of Arctic Hydrocarbon Extraction

Hydrocarbon development plays an important role in the plans for stimulating sustainable development in the North by increasing economic activities and northern businesses. Also the Arctic Human Development Report stresses the important influence of oil and natural gas extraction on the development of the northern economies. However, there is some evidence that the present northern economies do not widely benefit the Circumpolar North, but instead that the revenues are draining to the political and economic centers in the South.

³⁴ Trends are known for 12 out of 19 polar bear subpopulations. There is evidence that eight out of twelve subpopulations are already declining. (CAFF 2010: 8)

4.3.3.1. Economies of the North

In the Russian Federation, the economy of the North produces a substantial proportion of the national economy, even though it is rather sparsely populated: Only 5 per cent of the Russian population is living in the Circumpolar North, yet it is generating 11 per cent of the country's overall economic product (Duhaime and Caron 2006: 20). In Alaska and Northern Canada, the Arctic's gross domestic product is above the national average as well. Also the northern parts of Fennoscandia contribute substantially to their respective national economies (even though hydrocarbon extraction does not play such a crucial role there as it does in the Russian Federation or in North America). In comparison, however, to the countries' average gross domestic products, theirs are smaller or can even be negative during some periods. Moreover, there are big differences between the regions within the circumpolar countries, since the industries are highly concentrated in certain areas (Duhaime et al. 2004: 75 ff.). In such economically advantageous places, in which the industry is concentrated, the people might benefit significantly from the revenues. One reason could be that the communities have negotiated to become party in the extraction industries; Another reason may be a favorable local tax regime, leading to a “boom-town”. However, industrial activities can also be decoupled from the local communities; Resource extraction may take place in enclaves (Huskey 2010: 64 ff.). In some cases, new cities were established (such as Novy Urengoi in the Soviet Union, in 1974) and became the regional centers for building up the infrastructure (AMAP 2010: 2_254). Thus, a locally high GDP does not necessarily lead to high personal incomes in the entire region (Huskey 2010: 64).

4.3.3.2. Integration of the Arctic into the Global Economy

Instead, the revenues of the extractive industries often drain out of the Circumpolar North. One of the reasons is that the costs for operating in the Arctic are frequently too high for local (usually small) enterprises, and that the operations are instead carried out by major corporations. Due to of the risks connected with hydrocarbon development, only big players have the financial background to get insurance for extraction activities and could be able to provide compensation in case of accidents (cf. Emmerson and Lahn 2012). Therefore, companies working in the High North are usually subsidiary companies of national or transnational corporations. These companies usually have their

headquarters in the political and economic centers in the South (where the decision-making takes place and high-income staff is employed). The Arctic region is difficult to access and often lacks proper infrastructure for large-scale industries, which then needs to be built in the first place. The products are most often not sold in the Arctic, but instead are delivered to the remote world markets. The taxes and royalties are then generally paid to the central governments (Huskey 2010: 64 f.). Additionally, the shareholders of these companies, who are rarely to be found in the North, need to get paid their dividends. The revenues of private corporations are thus often transferred into the international financial markets (cf. Altvater 2005: 110 ff.).

In the North there is often lack of trained workforce. Due to the sparse population and lack of education possibilities, there is not enough skilled labor available in the region (Huskey 2010: 61 ff.). The fact that demographic changes correlate with resource development cycles (Bogoyavlenskiy and Siggner 2004: 40) permits the assumption that temporary immigrants benefit from the employment opportunities rather than local inhabitants (see also Huskey 2010: 61).

Many products and goods need to be imported to the Arctic because there are not sufficient manufacturing facilities available (Duhaime et al. 2004: 78). On account of the small, sometimes remote communities and the absence of financially potent markets, many goods cannot be produced locally (cf. Huskey 2010: 70). Nowadays even for traditional activities, such as reindeer herding, technology and supplies need to be imported, often leading to spin-offs further south. Duhaime et al. call this disequilibrium between exports and imports “a new element of asymmetrical relations between the Arctic and the rest of the world” (2004: 79) and stress that Arctic regions most of the time are not able to benefit from large corporation profits. Huskey suggests that, while traditional economies in the North are still sustainable (because they rely on local, renewable resources), modern development in the Arctic, which is focused on extracting non-renewable resources, is difficult to make sustainable. Even more, it threatens traditional livelihoods, as industrial activities often reduce the available land and maritime area necessary to carry out traditional economic activities (2010: 79 ff.).

Thus, natural resource extraction can, under some circumstances, lead to societal benefits in some places, yet a relatively high GDP in the North does not guarantee

widespread, circumpolar economic benefits. Even in those advantageous places where the economic wealth might trickle down because of workforce from outside the Circumpolar North or because of dependence on imported goods and products, resource extraction does not sustainably benefit the northern communities (Young and Einarsson 2004: 231). Moreover, even if the economic wealth did generally increase, it does not mean that human well-being is positively influenced by it. A study conducted by the Deutsche Bank shows absolutely no correlation between economic wealth and human well-being (Bergheim 2006). In any case, the majority of taxes and revenues do not remain in the Circumpolar North. Resource based economy often has the character of a monoculture, and when the resources are depleted, such economies frequently experience sharp declines (Young and Einarsson 2004: 231). Duhaime and Caron conclude, that the “circumpolar Arctic is exploited as a vast reservoir of natural resources that are destined for southern, non-Arctic, parts of the countries that also include Arctic regions, and more broadly to global markets” (2006: 22). Conflicts about resources can be approached from different perspectives. Yet, as one of the central problems, questions remain in regard to the distribution of territorial, social, and economic costs, as well as to the profits of economic development. Consequently, access to resources has always been part and driving motor of colonial and imperial practices. The drainage of resources from peripheries to the economic and political centers constitutes a “structural dependence” (Köhler 2005: 22). Thus, it is difficult to understand how Arctic hydrocarbon extraction can contribute to a sustainable development and to secure long-term human well-being in the Circumpolar North.

5. Discussion

With the establishment of the Arctic Council the discourse of sustainable development has taken over the agenda in Arctic governance, and has reduced the apparent sole focus on environmental protection as it has been the case within the AEPS. Hydrocarbon extraction found support as means of stimulating a sustainable development in the Circumpolar North. However, as we have seen in chapter 4.3, the impacts of hydrocarbon activities in the Arctic are not entirely positive, and especially in regard to their environmental consequences, they are predominantly negative. The Arctic Council did add a human dimension to the objectives of this governance network. However, human development is strongly intertwined with the health of nature (cf. Washington 2013). This chapter will elaborate, why despite the expected negative impacts on the environment and – in some regions – for the circumpolar inhabitants, Arctic hydrocarbon development is getting promoted.

5.1. Sustainable Development Discourse

The rise of the concept of sustainable development is not unique to Arctic governance, but it became one of the major discourses on several political levels: on international, national, and infranational scales. Sustainable development is most commonly seen as the trinity of sustainably developing the social, economic, and environmental spheres. The declarations of the Arctic Council promote sustainable development and environmental protection, even though environmental issues already constitute one of the three pillars of sustainability. Taking into consideration that environmental protection thus occurs twice in the main objective of the Arctic Council, one might raise the question, if not the Council's agenda shift favors environmental protection and just integrated it into a more holistic concept? To answer this question, we have to take a closer look at the origins of the sustainable development concept, as discourses always develop in the context to historic discourse formations. For a qualitative analysis, the relations to the genuine statements have to be reconstructed (Keller 2011: 78 f.).

5.1.1. The Development Paradigm

Since the end of the Second World War and the beginning of the Cold War, the western world has been trying to extend the influence of the capitalistic ideology under a new discourse: (Economically) “Underdeveloped” states and regions – the Global South – should become assimilated into the western socio-economic regime. Roughly speaking, the idea was that by stimulating economic growth in the Global South, economic inequalities should be decreased. The beginning of development policies is often traced back to the inauguration speech of US President Harry S. Truman in 1949 (e.g. Sachs 1992, Escobar 1995), when he declared the southern hemisphere as an “underdeveloped area” and suggested to globalize the “American way” to defeat poverty:

What we envisage is a program of development based on the concepts of democratic fair dealing. [...] Greater production is the key to prosperity and peace. And the key to greater production is a wider and more vigorous application of modern scientific and technological knowledge. (Harry S. Truman, January 20th, 1949, as quoted in Escobar 1995: 3)

In this context, the term *development* was used to bind peripheral regions to the western, capitalistic system at a time when the period of post-colonization had just taken off. According to Truman, poor regions should adopt western technologies and the western democratic model, and thus copy the model of the “advanced” states: The formula to successfully catch up with the western economies was as simple as: Generate economic growth! The consensus of the western elites as well as of the leaders in poorer countries was that industrialization would be the key to stimulate a growing economy. In the decades since the introduction of the idea of development, the approaches toward the achievement of this goal were heavily discussed. Nevertheless, at the beginning of – as Wolfgang Sachs called it – the “age of development” (1992: 2), the widely accepted equation became: Economic growth is similar to development (cf. Fischer et al. 2004: 29 ff.) and thus the concept of “development consisted simply of growth in the income per person in economically underdeveloped areas” (Esteva 1992: 12).

While development was not labeled as *human development* (at that time), economic growth was seen as fundamental to increase human life conditions as well as to relief people from poverty and to provide them with basic social services. Although social and economic development were still distinct approaches in the beginning of the development discourse, in the 1960s the Economic and Social Council of the United

Nations (ECOSOC) proposed that both spheres should be interdependent on each other and integrated aspects of development. In general, the main focus of development on economic quantifiers has become contested: After the increasing recognition that high growth rates do not bring satisfactory development progress, it was claimed, that more means should be considered than just economic growth (cf. Esteva 1992: 12 f.). In various international organizations, the discourse thus changed in such a direction that not materialistic but human oriented goals slid into the center of attention. The Cocoyoc Declaration, for example, stressed that the purpose of development “should not be to develop things but to develop man” (UNEP/UNCTAD 1975: 896). The criticism on the prominence of economic growth also received support by increasing ecological concerns: It became widely accepted that growing industries and consumption are responsible for environmental degradation, as illustrated in, for example, the Club of Rome's Limits of Growth, a pioneering report which was published in 1972. Nevertheless, also in the 1980s the economic agenda remained dominant in the development discourse. The global integration into the capitalistic world economic regime (emphasizing liberalization, privatization etc.) was enforced even further through the neoliberal agenda and apparently superseded alternative approaches (Fischer et al. 2004: 38 ff., see also Filzmeier et al. 2006: 134). After the end of this decade, the 1980s frequently became referred to as “the lost decade of development” (e.g. Esteva 1992: 16). The 1990s, on the other hand, nourished the development paradigm with fresh ideas and concepts, leading to a new focus on “human development.” Although the targets aimed at by human development shifted toward human needs (toward well-being, education, health, empowerment, etc.), economic development still remained the main tool to achieve the new set goal. However, the framework was adjusted as well: Social and political reforms, instead of only industrialization, should introduce wealth and prosperity. Good Governance (introducing democracy, constitutional legality, governance) became the new vehicle to stimulate the economy and thus human development (Fischer et al. 2004: 40, see also Altwater 2005: 71, 115, and Escobar 1996). The Millennium Development Goals,³⁵ which were established at the United Nation's Millennium Summit in 2000, emphasized

35 The **Millennium Development Goals** (MDGs) are 1) to eradicate extreme poverty and hunger, 2) to achieve universal primary education, 3) to promote gender equality and empowering women, 4) to reduce child mortality rates, 5) to improve maternal health, 6) to combat HIV/AIDS, malaria, and other diseases, 7) to ensure environmental sustainability, and 8) to develop a global partnership for development.

the general shift to the human centered understanding of development. But even after more than half a century has passed since Truman's speech, and despite all attempts and strategies that have been contested or executed, still more than a Billion people are living in poverty nowadays. As a matter of fact, the gap between the rich and the poor countries even has widened (Fischer et al. 2004: 17).

5.1.2. Environmental Awakening

While so far the endeavors to achieve a satisfying level of human development failed, the continuing economic growth and increased industrialism brought along severe environmental degradation, which was mainly caused by industrialization and mass consumerism (see for example Meadows et al. 2007) – both direct results of the prevailing development paradigm. In recent decades, environmental protection became more and more important in the political dialogue. Means for environmental protection have a long history, and environmental concerns have already played a role in philosophy in the past centuries (even though the motives might have been different from that in recent years; cf. Weisz and Payer 2005). Nevertheless, a politicization of the environment only took place after an environmental awakening occurred, which can be traced back to the 1970s.

In the 1960s and 1970s, some breathtaking literature and reports (e.g. Rachel Carson's *Silent Spring*, the Club of Rome's *Limits of Growth*, or Paul Ehrlich's *Population Bomb*) gained a lot of attention, leading the eye of the international society to environmental degradation. The raised public awareness of the (potential) consequences of anthropogenic pollution given, environmental damage was brought onto the agenda of the international community. In 1972, the United Nations Conference on the Human Environment (UNCHE) was held in Stockholm; It was the first major, international conference dealing with the human environment. The venue was not chosen coincidentally: Sweden has already been suffering for some time from air pollution that mainly originated in other countries. This demonstrated that pollution does not stop at national borders but rather is an international phenomenon, which consequently also needs international attention. With the final declaration of the conference, the representatives from the 113 attending states have agreed on international cooperation on environmental issues, marking the beginning of international environmental politics.

Another result was the establishment of the United Nations Environment Programme (UNEP), which became the organizer of follow-up environmental summits, like the Conference on Environment and Development (UNCED) in Rio in 1992, and the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002. These summits and conferences led to a vast number of international agreements on environmental issues and resulted in the establishment of new international institutions as well (e.g. the UNFCCC, or the Kyoto Protocol). Thus, within the past few decades, environmental politics became an important part of international affairs (cf. Heininen 2013b). Nevertheless, many major environmental problems, such as climate change, have not yet been solved. The environmental awakening did, however, lead to a general understanding and agreement that human behavior, and in particular the consequences of economic development under the prevailing ideology, do contribute to environmental degradation.

5.1.3. Evolution of Sustainable Development

In the present, the most popular term used in the context of environmental politics and development politics likewise is *sustainable development*. It became a cross sectoral theme, meaning that sustainable development plays an important role when new policies are negotiated or implemented, even though there is no concrete definition on what sustainable development is supposed to mean. In many cases, in defining sustainable development, the report of the UN World Commission on Environment and Development (WCED), also known as the Brundtland Commission, published in 1987, is referred to. It defines: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987: 43).

The interpretations of this vague definition vary widely, depending on the background and one's positioning in the discourse. However, there is a consensus that this term can be seen as a hybrid of the antagonistic concepts of the growth ideology within the development paradigm on the one hand, and environmental protection efforts on the other (e.g. Robinson 2004: 370 f., Mitcham 1995 and Escobar 1996: 329). Even though environmentalism can be seen as a threat to the free market (cf. in Peet et al. 2011: 4), sustainable development is “an attempt to bridge the gap between environmental

concerns about the increasingly evident ecological consequences of human activities and socio-political concerns about human development issues” (Robinson 2004: 370), without, however, any significant adjustments to the prevailing market system (Escobar 1996: 328). While the term sustainability has its roots in environmental and biological fields, the WCED gladly took up this terminology and put it in a more socio-political context. Within its mandate, the Brundtland Commission focused “a good deal of attention on social and economic conditions in developing countries, and their connection to environmental degradation” (Robinson 2004: 372). The report highlighted that environmental and socio-political issues are intertwined and that the ecological crisis cannot be overcome without defeating poverty. The linkage between underdevelopment and environmental degradation, though, also implies that human welfare and a sound environment need more development: The Brundtland report stresses that a sustainable future means producing more with less (WCED 1987: 206 ff.). Consequently Robinson argues that the Brundtland report has an anthropocentric approach that focuses on human needs and calls for further technological improvements and more efficiency (2004: 373 and 376).

5.1.4. Criticism on Sustainable Development

The concept of sustainable development is rather vague and allows many different interpretations and approaches. For example, in discourses within political ecology, the concept of sustainable development is highly contested: Sustainable development is seen as a continuation of the prevailing development and growth paradigm. Capital is undergoing a change and enters an ecological phase: Nature is no longer treated as an external, exploitable domain, but rather, aspects of nature become incorporated into capital. Capital takes over a conservationist tendency because it understands that it needs to manage nature in order to sustainably utilize it; an understanding that changes the societal relationship with nature. Managing nature, however, would mean its capitalization, thus leading to its treatment as a commodity: “In the sustainable development discourse nature is reinvented as environment so that capital, not nature and culture, may be sustained” (Escobar 1996: 328). Thus, the environmental pillar of sustainable development means, nature needs to be managed sustainably, in order to be able to economically benefit from natural resources in the long-term, and should not be confused with nature conservation. Thus, ecological arguments are not socially neutral,

but rather simultaneously also political-economic arguments – and vice versa (Köhler 2008: 217, see also Wissen 2011).

While sustainable development was partly a response to the destructive character of development, it was not the sustainability of cultures or realities that became expound as problems, but rather the global ecosystem. Within the sustainable development discourse, the aspects of development and economy are being reproduced, and the classic concerns of the development paradigm, such as satisfying basic (human) needs, access to natural resources, advancing technologies and industrialism remain. As a consequence, also the prevailing economic framework continues. What is questioned is not the concept of economic growth, but only the environmental impacts of economic growth, which thus extends to the “economization of life and history” (Escobar 1996: 331). “[I]n its mainstream interpretation, sustainable development has been explicitly conceived as a strategy for sustaining 'development', [but] not for supporting the flourishing and enduring of an infinitely diverse natural and social life” (Esteva 1992: 16).

5.2. Hydrocarbons: The Motor of Development

Nevertheless, under the discourse of sustainable development, it did become widely accepted and acknowledged that the development paradigm, along its growth ideology, is closely linked to environmental degradation. However, neither the paradigm of economic growth nor the dominant market system have been seriously contested. The sustainable development discourse was rather used to give the prevailing economic system a “green coat,” which allowed a further generalization of the interests of the hegemonically dominant groups on an international scale. Sustainable development and international environmental treaties likewise, only aim to reduce the most harmful impacts of economic development (cf. Altvater 2005: 82). The Arctic Council, in line with the international community, also adopted the sustainable development discourse, which provided a good basis for hiding the offensive economic development agenda under an apparently environmentally friendly umbrella. Otherwise, the interest in – and the promotion of – offshore hydrocarbon development in Arctic governance might have been more difficult to generalize.

Toward the end of the 20th century, many voices were professed, that we have already reached peak oil, meaning, that we have already extracted so much of the hydrocarbon resources, that the production volumes cannot be maintained any longer but are inevitably going to decline. In such a case, energy would not just run out, but other energy sources and technologies would be needed for substitution (e.g. in Bridge 2011, Gründinger 2006, Deffeyes 2001). However, the changing climate made the Arctic maritime area more easily accessible, and thus opened up the opportunity for exploring vast amounts of new fossil resource deposits. On the other hand, also new technologies to recover unconventional oil and natural gas fields have advanced (especially in the US, which has been a significant petroleum importer for many years, and is expected to soon become a net-exporter; IEA 2012: 1) and supersede the peak oil debates.

5.2.1. Hydrocarbons and Capitalism

Yet there is a good reason why hydrocarbons are so important. It is not only private corporations that push for oil and natural gas extraction, but also the Arctic states, as well as states in other parts of the world. The national governments subsidize technologies connected with fossil resources rather than developing technologies for energy production from renewable energy resources. The reason is that hydrocarbon extraction is not just another business model to make profits through, but fossil fuels are the driving motor behind modern industrialism and capitalism. Altvater (2005: 78) states that the industrial revolution is a fossil revolution at the same time, and its impact on human history is as significant as the impact of the neolithic revolution.

In the neolithic revolution, people learned how to harvest solar energy: Agriculture, breeding of plants and domestication of animals was essentially a step to learn controlling the flow of solar resources. However, agriculture depends on space and uses it extensively. The flow of solar energy can be harvested only in a decentral way, and thus also the production and reproduction would be locally organized (Ibid.). Although fossil resources originate in biomass as well, unlike conventional biomass, they have been captured under the surface for millions of years under high pressure and temperature (Link 1987). Under these circumstances the solar energy became spatially centralized, and through the compression of the biomass, it has been transformed into a dense (and purer) energy resource. In other words, the solar energy captured in plants

and animals has been compressed and stored into the form of fossil resources. As such a dense energy resource, it sets the physical precondition for industrial production. Extraction of additional fossil resources became necessary in order to increase the efficiency of productivity and to achieve a bigger surplus (Altvater 2005: 78 f. and 55 f.), and it became the basis for economic growth.

Yet only the combination of capitalism and fossilistic ideology allowed for the increase of the production acceleration, by significantly raising the productivity. Utilizing fossil fuels in economic processes granted a vast intensification of industrial manufacture, as it enabled the engines to become much more powerful. This physical power expansion boosted the efficiency of the machinery and set a precondition to permit the high production increase rates that were necessary for mass production as well as for generating profits for the industrial capitalists. “The significance of these fuels is their capacity to generate tremendous energy 'surpluses' [...] compared to renewable energy sources” (Bridge 2011: 311). The usage of fossil fuels also provides the opportunity for faster transportation and thus leads to a compression of time and space, which in return allows for the expansion of markets. Globalization is essentially a product of this compression. The trinity of capitalism, fossil fuels, and industrial rationality causes a historically unique acceleration of all economic and social processes and thus an incredible increase of the 'wealth of nations' (Altvater 2005: 75). However, not every state has (or had) access to the technologies that are necessary in order to utilize this energy source. Having technological knowledge and the knowledge of how to use it – or sharing knowledge with allied groups – is the ethical dimension of hegemony. Dominated groups may be provided with selective or even no information (cf. Brand 2008: 176). However, those nations that in the end have access to hydrocarbon utilization gain a significant advantage over those countries that lack fossil fuels, or that do not have the necessary technologies to use them. Thus access to fossil fuels leads to the social creation of inequality (Altvater 2005: 80). This becomes statistically visible, as the amount of energy consumption shows strong correlation with the economic output of a nation (Bridge 2011: 307 f.).

5.2.2. Consequences of a Fossilistic Capitalism

The merging of fossil fuel technologies and capitalistic paradigms has changed the society dramatically: The social form of urbanization is a product of the fossil revolution, and leads to an industrial-fossil way of life (Altvater 2005: 89). Hydrocarbons have become encapsulated in social institutions and material infrastructure, which makes “the oil-fulled economy [...] a heavily incumbent energy system with a degree of political, economic and social embeddedness that makes it difficult to dislodge” (Bridge 2011: 313). With industrialization also the growth ideology boosted and became an intrinsic part of the imperatives of the dominating economic and political discourses. This can also be seen in Arctic governance, as well as in the national strategies of the Arctic states, where the growth ideology (promoting businesses, economic dimensions etc.), based on fossil resources, as well as the exploitation of hydrocarbon resources to satisfy these objectives, was set to high importance.

However, the economy cannot grow indefinitely. On the one hand, the physical input of matter has limits, as non-renewable resources deplete at some point. On the other hand, undesired by-products, such as pollution, won't find indefinite sinks (cf. Meadows et al. 2007). Thus, the capitalistic process of accumulation exceeds the natural conditions of possible reproduction. Nevertheless, the states continue to push the neoliberal system and the growth ideology, which is based on dense energy resources, that are non-renewable.

The 'real' economy, the economy of production and actual goods, already found its limits: The markets (which could afford to take part in this economy) have become saturated and new means need to be created in order to continue economic growth. One way to deal with the generated, tremendous capital surplus is to find new investment possibilities. Suitable opportunities can be found in the frontiers, especially where exploring and exploiting new resources is costly. Such frontiers are usually in the political and economic peripheries, which are furthermore also suitable to create new markets for the overproduction of goods. Another way to stimulate economic growth is to expand activities on the financial markets, which anyways have already exceeded the 'real economy' by far. In 2002, only less than 2 (!) per cent of the international financial

flows have originated in the real economy. Nonetheless, speculations on the financial markets are based on the real economy and therefor force the real economy to generate high growth and returns (Altvater 2005: 112 ff.). On the other hand, the fossilistic capitalism contributes to the deceleration of the nations' gross domestic products: The environmental degradation that is caused by industrialism and mass consumption, has serious societal consequences, that need to be compensated: Financially this is accounted as *external effects* and *social costs*. The external effects are due to the environmentally harmful impacts of hydrocarbon exploitation that have gotten so intense, that the production costs of natural resources have increased substantially. Compensation for the ecological damages and the grown costs of resource extraction are thus limiting the profits. Additionally, the utilization of fossil resources leads to environmental degradation and health issues (because of polluted water and air etc.) that have to be borne by the public (Ibid.: 105 ff.), which is essentially a cost transfer to the public communal and national sectors and thus a public subsidization of hydrocarbon developments.

5.2.3. Securing Fossil Energy for Sustaining Power Relations

Energy security aims to secure the necessary energy supply for human development. The sustainable development discourse that the Arctic states follow in order to achieve the desired kind of human development calls for further economic development under the prevailing market system. Hydrocarbon technology is, however, an outdated technology, that is known to be of destructive nature. Conventional, non-renewable energy resources tend to need centralized, large-scale plants to utilize the resources. Renewable energy sources can be used in small scale and peripherally, and thus help to empower people and make them less dependent on the political and economic centers (cf. Scheer 2005: 14). Decentral energy production that is based on renewable resources would have many advantages in the partly remote, inhabited places in the Arctic. Producing energy from renewable resources is also possible in the Circumpolar North, but has not been studied yet as much as hydrocarbon resource utilization (cf. SDWG 2009: 11). However, modern technology even allows the use of solar power north of the Arctic Circle during winter time (e.g. Richardson December 15th, 2012). As a matter of fact, the cold Nordic climate can even be an advantage in solar energy production, as the efficiency of solar panels increases with lower temperatures (Norden October 18th,

2011). In any case, taking advantage of decentral and renewable energy resources might not be in the interest of industrial energy producers, since profits from them are generally more limited than profits from large scale energy production (cf. Scheer 2005: 13), which has more industrial characteristics. However, due to the negative consequences, even the Worldbank has criticized that the industrial³⁶ as well as the developing countries are investing more in non-renewable energy sources than in renewables (Gründinger 2006: 112).

Beside promoting hydrocarbon extraction, the Arctic states (through their national Arctic strategies as well as through Arctic governance) also advocate to build up infrastructure that is based on hydrocarbon technologies (such as airports or roads). Investing in fossil technologies, however, further increases the dependency on oil and natural gas. Yet due to the non-renewable nature of hydrocarbons, this creates a path dependency that will be very expensive to alter once the resources deplete (cf. Scheer 2005: 13 f). If the states gave as much financial attention to renewables as they do to non-renewable energy sources, technological progress could already be more advanced (Gründinger 2006).

5.3. Rescaling Arctic Governance: Generalization of the Interests of Capital

Fossil energy resources are of high importance in order to continue exercising the economic growth paradigm. Even if more sustainable, a shift to renewable energy sources might limit high economic growth rates in the current market system. Turning society into a sustainable society, in which general human well-being is desired (and not only the exclusive advantage of dominant groups) and in which the intrinsic values of nature are respected, would demand a fundamental societal transformation away from non-renewable, high-energy resource use. Altvater states that it seems unlikely that such

36 Also statistics from the International Energy Agency (IEA) indicate, that in the period from 1987 to 2002 the governmental Research and Development budgets of the IEA countries (which are basically the OECD member states) were divided as follows: 39.7 % in nuclear fission-, 12.3 % in fossil fuels-, 11 % in nuclear fusion-, 14 % in other-, and **only 7.7 % in R&D for renewable energy technologies**. Another 11.2 % went into conservation, and 4.1 % into power & storage technologies. (IEA 2004: 54)

a transformation would come gradually because the dominant classes are holding on to their power and try to avoid any kind of change. To maintain their dominance, it is essential to have access to dense energy sources, in particular to oil and natural gas (as well as nuclear power), which is why energy security is such an important issue for the current hegemony (Altvater 2005: 84 ff.). Also the circumpolar states have stressed the importance of sovereignty and national security in their respective Arctic strategies, and further emphasized the significance of economic development, in particular through the exploitation of oil and natural gas, as means to maintain their sovereignty (Heininen 2011: 80 f.); This despite the fact that hydrocarbon development in the High North remains connected with numerous risks.

5.3.1. Common Interests: Establishing Arctic Cooperation

In the political and economic centers in the South, the Arctic has historically been seen as a frontier region and as an empty space, in which resources can be exploited. This notion continues to exist. What has changed, however, is the approach toward the way in which the exploitation should be carried out. Hydrocarbon resources have been used extensively, and the production rates were believed to have exceeded their maximum, which is why new deposits need to be unlocked. As a result of the non-renewable nature and the corresponding scarcity of fossil resources, access to undeveloped deposits is crucial to the sovereigns, turning it into an issue of strategic importance. Growing interest in access to a resource results usually either in competition or in more trade and cooperation (Heininen 2010: 246).

The recent history of the Circumpolar North shows that after the period of the Cold War, the sovereigns of the North decided to take the path of cooperation instead of conflict, which is not surprising in consideration of the fact that capital is anxious to establish stable configurations of territorial organization (Köhler 2008: 218). The starting point was the apparent common interest in resolving the ecological crisis in the High North. This common interest materialized on the spatial scale of the circumpolar region into the Arctic Environmental Protection Strategy. In neoliberal reality, capital has transferred nature into a commodity and reinvented it as environment (see chapter 5.1.4). Nature and built environment are not socially neutral; Societal power relations are encoded in nature and in built environments (Wissen 2008b: 74). Due to this

relationship, every form of politics has an environmental dimension, and environmental politics simultaneously incorporates socio-economic interests. Rescaling access to the environment and to natural resources is a strategic social process, done in order to materialize power relations (Köhler 2008: 217 f.). While the AEPS emphasized that sustainable economic development should be possible under the Strategy, the dispositif remained environmentally friendly. This changed soon after, when only a few years later the Arctic Council was established, and the discourse within this young governance network was reorganized and rearranged: Sustainable development became the dominating discourse in the Arctic Council.

5.3.2. Hydrocarbon Governance in the Arctic

Already when the AEPS was established, instead of being provided with hard legal power, this new vehicle instead was formed with a soft law approach. This could indicate that a tight environmental regulatory regime, which, for example, is in place in the Antarctic,³⁷ had not been intended. Such a legal regime might have made resource extraction much more complicated, or even impossible, for an extended period of time. However, as opposed to the Antarctic, in the North national states established territorial sovereignty over all land areas and most of the waters. The circumpolar states established their respective national legislation to protect the Arctic environment within their sovereign territory (Koivurova 2011: 41 f.). Due to the soft law approach, the governance network of the Arctic only provides guidelines on how to extract hydrocarbon resources. In regard to oil and natural gas exploitation, the Arctic Offshore Oil and Gas Guidelines recommend an Environmental Impact Assessment in order to prevent environmental harmful impacts of hydrocarbon developments. However, “it is difficult to say whether it has actually been made use of since the Arctic Council does not evaluate the effectiveness of the instruments it produces” (Ibid.: 39). This highlights Picotto's thesis that a soft law approach favors the neoliberal agenda: Instead of regulating through hard law, it stands for a liberal legal framework and allows self regulation of corporations (Picotto 2007: 265 ff.). The absence of a tight legal framework leads to ”a large body of private law and standard from contracts³⁸ such as

37 The Antarctic Treaty System, which is based on the Antarctic treaty from 1959, has implemented a tight regulatory framework for any activities in the region. For example, through the Antarctic Treaty System, mining is prohibited indefinitely. (Koivurova 2011: 32 ff.)

38 In hydrocarbon development, contracts are one part of the overall hydrocarbon regime that governs

operating and farmout agreements dealing with the legal relationships between the different actors in the industry,” although in some cases the government “acts as both owner and regulator of the resource” (Banks 2011: 105; own footnote) and resource extraction, when state owned corporations are involved. Generally, governments exercise control of – and usually decide – when and to whom concessions are given (Ibid.: 121). Even where the state is not the owner or operator, it still holds on to a central role in the development process by granting subsidies, giving credit guarantees, building infrastructure, or granting tax breaks (Huskey 2010: 63). Thus, in the case of private corporations operating the resource extraction, the state's influence did not disappear, but only shifted to indirect allocation of public services (cf. Picotto 2007: 253). The governance network in the Arctic is supporting this neoliberal regulatory approach. Additionally, the regional governments do not have a big say in decision making regarding hydrocarbon exploitation (Loukacheva 2013: 142).

5.3.3. Maintaining Hegemony Through Arctic Governance

Hegemony is a dichotomy of leadership and force. Hegemonic leadership is established through the creation of knowledge. The Council's main work is produced in the working groups, which are expert networks. On account of resource allocation in knowledge production as well as the influence of political actors in expert networks (see chapter 3.3.2.2), the results of the working groups create support for the interests of the dominant groups. The analysis at hand shows that those groups, that have interest in the Arctic's economic development with little respect to environmental degradation, have been able to generalize their interests in the Circumpolar North, and have materialized these interests into the institution of the Arctic governance network AEPS/Arctic Council. This was possible by placing the discourse of sustainable development as the main agenda in the Arctic cooperation. While a discourse can have diverging notions, the *dispositif* in Arctic governance is economy-centered. The Council, as a network, proves to have a considerable influence on the intellectual leadership role, in the interest of the political centers of the Arctic states. However, in the past, some circumpolar states have also demonstrated willingness to use force in order to protect their economic endeavors: When environmental activists attempted to protested against Arctic

fossil resources. Hydrocarbon resource exploitation projects often involve hundreds of contracts to settle how to build, finance, and operate the projects. (OpenOil 2012: 16 f.)

hydrocarbon activities, the protests have been hindered with force, and the activists have even been imprisoned for some time.³⁹

With the Arctic governance network of the AEPS and the Arctic Council, the circumpolar states have been able to establish a regional cooperation that materializes the interests of capital. The Arctic Council is a network alliance that favors economic development in the North by introducing market structures and technologies that benefit the political and economic centers in the South. In the Council, the discourse of sustainable development has been able to combine the economic interests of the southern elites (exploiting the resources in the North), with the promise of protecting the Arctic environment. Achieving hegemony through the generalization of the interests of the dominating groups is not frictionless: Giving some room for (environmental) concerns helps to build alliances through including the concerns of opposing groups, but nevertheless to generalize the interests of the dominating groups. Although the analysis that has been carried out in the scope of this paper did not reveal oppositions to the predominant discourse in Arctic governance, the establishment of the forum of the Arctic Five suggests that in case of strongly opposing interests in the Council, the smaller forum could take over the responsibilities for issues related to offshore hydrocarbon extraction. Thus, the network of the Arctic Five also puts the littoral Arctic states in a stronger position in negotiating the dispositif in Arctic governance. This indicates, that the spatial reorganization is not fixed, and that there are still ongoing struggles on determining the scale of Arctic resource politics. Nevertheless, the Council's current approach is neoliberal and establishes no legally binding framework for hydrocarbon development; This favors the interests of parties that profit from hydrocarbon extraction, which can mainly be found in the political and economic centers located in the South.

Thus, in regard to hydrocarbon exploitation in the Circumpolar North, the examined Arctic governance network can be considered to be a hegemonic project – or part of a hegemonic project – initiated in order to maintain or strengthen the influence of the

39 In June 2011, 18 Greenpeace activists have been arrested, after they attempted to climb a drill rig off the Greenlandic coast. The protesters demanded to see the Oil Spill Contingency Plan from Cairn Energy, the operator. (Greenpeace June 4th, 2011)

In 2013, 30 crew members of a Greenpeace ship were arrested by Russian authorities, when they attempted to climb a drilling platform in the Russian maritime Arctic. After they first have been charged with piracy, later the charges have been downgraded to hooliganism. The protesters were held imprisoned for over 2 months, but were released after the charges have been dropped under an amnesty by the president. (e.g. AP December 25th, 2013)

dominant groups from the South, and by generalizing their interests through the establishment of the discourse of sustainable development.

5.4. Uncertainties and Remaining Questions

This paper presented arguments, claiming that the dominant groups of the circumpolar nation states have been able to materialize their interests within Arctic governance. Nevertheless, it has not been possible to further identify the dominating groups. It has been argued that the national Arctic strategies have been used in order to demonstrate the states' interests in the Arctic. One of the reasons that this paper discusses the states as main actors is that, in Arctic governance, they still remain the main actors. However, also within the national states, diverging groups are struggling for a generalization of their interests. It would be interesting to have a closer look at the various groups on the subnational level, and to analyze whether there are also other international networks that support the predominant discourse in the Arctic Council.

Furthermore, IPOs are accepted as permanent participants in the Council. Within the scope and limited resources of this paper, the heterogeneous interests of the various IPOs were difficult to determine because of lack of a comprehensive set of data. Further research would make a number of interviews with representatives of the IPOs necessary. Similar to the national states, also the IPOs are constituted by actors with diverging interests that aim for generalization. Thus, further research should also consider an analysis of various actors and their interests amongst the IPOs.

Moreover, IPOs are the only actors of civil society that have been accepted as permanent participants. Other non-governmental organizations were only admitted as observers, having thus no saying in the decision making of Arctic governance. This also raises the question: What gives IPOs privileged rights in Arctic governance – especially considering that they are (except for the case of Greenland) minority groups in the Circumpolar North?

As difficult as the case of non-governmental organizations in Arctic governance is the consideration of corporations, even though they are important actors as well. However, analyzing ownership structures is often very difficult due to non-transparency.

Furthermore, it may happen that apparently private corporations are intertwined with governmental institutions or decision makers through informal networks, and are thus difficult to discover. Nonetheless, analysis of ownership structures and the relationships between private corporations operating in the Arctic and governments could be considered as an objective for further research.

6. Conclusions

The consequences of anthropogenic climate change affected the Arctic twice as much as it did the global average. As a result, the sea ice is retreating and the periods and size of open waters are increasing. In the Arctic maritime area, vast hydrocarbon resources are predicted, which due to the sea ice retreat are becoming more easily accessible. Currently, human activities in the Circumpolar North do not contribute significant amounts to the global greenhouse gas emissions, which are responsible for climate change. In general, the Arctic has been rather a sink for pollutants and contamination than a source. Around the end of the Cold War and due to the increasing visibility of environmental degradation in the region, the eight Arctic states – Canada, the Kingdom of Denmark, Iceland, Finland, Norway, the Russian Federation, Sweden, and the USA – started a cooperation in order to define, and monitor, and finally to eliminate pollutants and contaminants in the Arctic. Since a legally binding construction (like, for example, a convention or a treaty) could not have been agreed upon to, the circumpolar states founded the Arctic Environmental Protection Strategy (AEPS), which was set up as an intergovernmental forum, with the aim of cooperating and coordinating on Arctic environmental issues. The circumpolar states have thus established a governance network on a new spatial-institutional level. In 1996 this cooperation was brought to another scale, when the Arctic states established the Arctic Council, which is a high-level intergovernmental forum. The Council not only incorporated the AEPS, but also substantially extended the objectives with the goal of promoting sustainable development in the Circumpolar North, and thus added a more anthropocentric approach to this cooperation. However, similar to the AEPS, also the Arctic Council remained a soft law institution, whose main performance lies in producing guidelines, technical reports and ministerial declarations. The latter are also the reports of the main decision making body: The biannual ministerial meetings.

While the AEPS was a cooperation founded in order to reduce or eliminate environmental degradation in the Arctic, the Council's objective also included aspects of human development in the High North: The Arctic Council set the discourse of sustainable development in the Circumpolar North at the top of its agenda. While the

Council's ministerial reports generally do not specify on how to achieve this goal, they make clear that economic cooperation should be the main vehicle, and that hydrocarbon extraction is seen as one possibility to achieve sustainable development in the region. However, the exploitation of fossil resources entails numerous environmental risks. The biggest threat comes from oil spills: Oil can be released through a blow out on the well site, from shipping incidents, or from leaks in pipelines or storage facilities. Due to the difficult working environment in the Circumpolar North, response to accidents is more difficult than in many other regions and is probably not even possible for extended periods of time. Furthermore, the Arctic region has particularly vulnerable ecosystems as a result of the harsh climate: Shorter seasons for reproduction, high amounts of migratory species, and relatively low biodiversity make the Arctic more vulnerable than most other regions on this planet. Climate change, currently the biggest stressor for the Arctic environment and inhabitants, is also driven by the use of fossil fuels. Extracting oil and natural gas in the High North does directly contribute to greenhouse gas emissions through operational activities, as well as by increasing the amount of fossil fuels (and thus of climate change enforcing emissions) available on the global market. Thus, considering the environmental risks of hydrocarbon exploitation, the fact that environmental sustainability is one of the three pillars of sustainable development, and the Council's emphasize on the importance of environmental protection, it seems conflicting to promote sustainable development and hydrocarbon extraction within one political forum.

Taking notice of this ambivalent relationship, the questions and leitmotif of this paper have been: Has the increasing interest in utilizing the hydrocarbon resources in the Arctic become stronger than the original intention in Arctic governance, namely, to protect the Arctic environment and its inhabitants from pollution and environmental degradation? If so, what are the major drivers behind such a shift? And in whose interest is this shift? The aim of this paper was to analyze a potential transition using a discourse analysis of the main documents of Arctic governance, as well as a qualitative analysis of the prevailing discourse(s), in order to find answers by utilizing approaches from the scale debate in combination with approaches from theories of hegemony and internationalization of states.

With the establishment of the APES and the Arctic Council, the eight Arctic states have developed a political instrument on a new spatial-institutional scale. This high-level intergovernmental panel was set up using a soft law approach. While it has some formal characteristics of an international organization, it does not qualify as one under international law (Hasanat 2007: 21). By creating an institution on the spatial scale of the Circumpolar North, the Arctic states have been able to increase their influence in the Arctic region as well as internationally, since they have been able to emphasize their role as sovereigns in the High North. The Arctic states have shown common interest in the Arctic, an interest which still needed to develop through the cooperation: First aims to take care of environmental degradation were the focal point, even though resource extraction and economic activities were not to be hindered; However, only a few years after the establishment of this cooperation, the focal point changed and economic interests moved into the foreground, with only considering the most harmful, subsequent environmental impacts.

Decision making is a conflictual process, in which compromises need to be made. Setting the achievement of sustainable development as the dominant discourse, economic development is desired, yet in a way that the most harmful impacts on the environment should be avoided. However, by supporting risky activities such as hydrocarbon extraction, the original main objective of environmental protection has been compromised in favor of economic development. While a new political cooperation does not necessarily grant the successful generalization of the interests of the hegemonic groups, this Arctic governance network proved to be a coalition, working in favor of the political and economic centers of the Arctic states.

Hydrocarbon extraction in the Circumpolar North might benefit some regions or lead to the establishment of “boom towns,” however, some other regions might have to live with the downside of hydrocarbon industries. A growing income in some parts of the Arctic does not necessarily benefit the Arctic region or inhabitants widely. Hydrocarbon exploitation in general is not just another business model followed in order to stimulate economic growth, but much more than that, fossil fuels are the driving motor behind modern industrialism and capitalism (Altvater 2005). Hydrocarbons are a dense form of energy, into which solar power from millions of years is compressed. This high energy surplus sets the precondition for industrial production because of the achieved increase in machine power and productivity. Hydrocarbon technologies also set the precondition

for globalization, as fossil fuels have allowed for modern transportation, which in turn lead to a compression of space and time, allowing the expansion of markets. Since not every state has access to such energy dense resources or the respective technologies, those states which do have it, gain a massive advantage from this ability. However, fossil resources are not renewable, which means that they can become scarce. Since hydrocarbon technologies are deeply encapsulated into capitalistic societies, a technological change (especially one toward renewable resources) threatens the hegemony of the current dominating groups. For the Arctic this means that, by cooperating on the exploitation of the vast Arctic hydrocarbon resources, it is possible for the dominant powers to maintain their role as hegemon internally and on an international scale.

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Annex I: Abstract (English)

The anthropogenic climate change has lead to a significant temperature increase in the Arctic, which, in the past decades, has been twice as much affected by climate change than the global average. As a consequence, the sea ice is melting and the maritime area is becoming more easily accessible for the exploitation of the vast hydrocarbon resources that are predicted to be in the Circumpolar North. Since the beginning of the Arctic's colonial history, resource extraction, conducted by the powers of the South, has constantly played an important role for the sovereigns. And still, as of yet fossil resource extraction in the maritime Arctic is only at the beginning.

In the past decades, a governance network has evolved in the Arctic region. Around the end of the Cold War, the Arctic states established a regional cooperation on environmental issues and founded the *Arctic Environmental Protection Strategy* (AEPS), whose purpose was to define and eliminate contaminants and pollution in the Arctic. The Arctic Council was established in 1996 as a successor organization of the AEPS. The Council not only incorporated the AEPS agenda, but much more, it substantially widened the scope of the cooperation: Increasingly, the discourse of sustainable development has taken over the agenda. While oil has been defined as a pollutant in the AEPS, the Arctic Council promotes hydrocarbon resource extraction as means of stimulating sustainable development in the region. The national Arctic strategies, as well, call for exploitation of the Arctic's resources on behalf of human development.

Hydrocarbon exploitation imposes numerous environmental risks, and increasing economic activities resulting from extractive industries do not necessarily benefit the Arctic's inhabitants in general. Thus the questions arises: Has the increasing interest in utilizing the hydrocarbon resources in the Arctic become stronger than the original intention in Arctic governance, namely, to protect the Arctic environment and its inhabitants from pollution and environmental degradation? And if so, what are the major drivers behind such a shift, and in whose interest is such a shift? The hypothesis in this paper is that the economic interests of the dominant powers within the Arctic

states overtrumped the original idea of environmental protection in the Arctic region; Economic development, favoring the political and economic centers in the South, has taken over the agenda, with little respect to the Arctic's environment and inhabitants. The hypothesis is examined making use of approaches from politics of scale, which are combined with Gramsci's concept of hegemony and Poulantzas' approach on the internationalization of states. The methodological tool used is a discourse analysis of central documents of the Arctic cooperation and the national Arctic strategies.

The research shows, that the discourse of sustainable development has been increasingly used since the establishment of the Arctic Council. Moreover, the dispositif in Arctic governance has developed a distinct economic approach, and hydrocarbon business has gained increasing attention and support. In addition, hydrocarbon extraction is necessary for the dominant classes to maintain their hegemony. Capitalism requires dense energy resources (such as fossil resources), that allow for high economic growth rates. Hence, the discourse of sustainable development and energy security, which are the main arguments for the development of Arctic hydrocarbon activities, have become issues of maintaining current power relations. Arctic governance has thus become a vehicle for the dominant groups of the South in order to generalize their economic interests and to materialize them on a new spatial scale.

Annex II: Abstract

(deutsche Zusammenfassung)

Durch die globale Erwärmung werden die großen Vorkommen natürlicher Ressourcen in der Arktis leichter zugänglich, und verschiedene Interessensgruppen sind danach bestrebt, diese auszubeuten. In der Arktis hat sich in den letzten Dekaden ein Governance System entwickelt, wobei der *Arktische Rat* als wichtigste Institution hervorzuheben ist. Obwohl dieser Rat als Nachfolgeorganisation der *Arktischen Umweltschutz Strategie* hervorging, welche die Identifizierung und Eliminierung von Schadstoffen zum Ziel hatte, wird vom Rat in den letzten Jahren zunehmend die Ausbeutung von Kohlenwasserstoffen im Arktischen Meer angestrebt.

Angesichts der Tatsache, dass die Förderung von Öl und Erdgas mit wesentlichen Risiken verbunden ist, hat sich daher die Frage gestellt: Hat sich das Ziel der Arktischen Kooperation verändert? Und wenn ja, welche sind die treibenden Kräfte hinter einem solchen Umschwung? Die Hypothese die dieser Arbeit zu Grunde liegt ist die, dass sich der Rat einer ökonomischen Entwicklung verschrieben hat; die dominanten Gruppen aus den politischen und ökonomischen Zentren im Süden wollen durch das Arktische Governance System ihre Interessen in der Arktis durchsetzen.

Mit Hilfe der *Scale Debatte* soll nachgewiesen werden, dass sich die sozialen Naturverhältnisse der Machteliten der arktischen Staaten durchgesetzt – und den Diskurs übernommen haben, und die Agenda im Arktischen Governance System nun von den Interessen der politischen und ökonomischen Machtzentren dominiert wird. Als Werkzeug zur Überprüfung dieser Hypothese dient eine Diskursanalyse der wichtigsten Dokumente des Arktischen Rates sowie der nationalen Arktischen Strategien der Staaten mit Arktischem Territorium.

Durch die Diskursanalyse konnte herausgearbeitet werden, dass das Konzept der „nachhaltigen Entwicklung“ den Diskurs im Arktischen Rat übernommen hat. Eine qualitative Analyse des Diskurses zeigt, dass der Dispositif ökonomisch geprägt ist. Die dominanten Gruppen der zirkumpolaren Nationalstaaten haben Ihre Interessen im Rat

materialisieren können. Fossile Energieträger sind jedoch nicht einfach nur ein Rohstoff mit dessen Herstellung sich Profit machen lässt; vielmehr sind fossile Ressourcen der Motor des rasanten ökonomischen Wachstums seit der Industrialisierung. Die Verwendung fossiler Ressourcen ist also auch Motor des Kapitalismus. Würden diese Ressourcen versiegen oder von erneuerbaren Energieträger abgelöst werden, dürfte dies wahrscheinlich auch zu einer Veränderung der gegenwärtigen Herrschaftsverhältnissen führen. Der Abbau von Öl und Erdgas ist daher bedeutend für die dominanten Klassen, um ihre Macht erhalten zu können. Daher dient auch die Politik im Arktischen Rat vor allem dem Vorteil der Eliten aus dem Süden, während der Großteil der Bewohner der Arktis nicht von der Kohlenwasserstoffextraktion profitieren kann. Die herrschenden Klassen konnten also ihre Interessen im Arktischen Governance System materialisieren.

Annex III: Curriculum Vitae (Feb., 2014)

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(PGP Public Key) http://gerald-zoer.com/upload/pgp/info_pub_key.asc

Website <http://www.gerald-zoer.com>

Language Skills German (**mother tongue**)

English (fluently)

Russian (basics)

Finnish (basics)

Education 1997 - 2001 Part-time Vocational School in Villach

1999 - 2003 College for Mechanical Engineering in
Klagenfurt, Lastenstraße (night school)

2006 - 2014 Development Studies at the *University
of Vienna* (research focus: *sociology of
technology studies, environmental
politics, energy politics, and hegemony
theories*)

2010 – 2013 Arctic Studies at the
University of Lapland (as ERASMUS
and free-mover exchange student)

2011-05 International Summer School in Karelia
(Helsinki and Petrozavodsk, May,
12th-18th). Theme: “From Circumpolar
Stability toward Nordic Peace;”
organized by: *Aleksanteri Institute –
University of Helsinki* and *Petrozavodsk
State University*

2011-08 International Finnish-Russian Summer
School in Lapland (Kilpisjärvi); August,
7th-15th. Theme: “The Politics of
Nature: Man, Nature And the Limits of
Modernity;” organized by *Aleksanteri
Institute – University of Helsinki* and
*National Research University – Higher
School of Economics, Moscow*

Additional Courses

2004-09 Basic Petroleum Geology, by Petroskills

2005-03 Basic Drilling Technology, by Petroskills

Career

1997 – 2001 Machine Fitter - Apprenticeship at
Flowserve Schmidt Armaturen GmbH in
Villach (www.flowserve.com)

2001 Obligatory Military Service

2002 - 2003 (Product Development) Engineer,
Flowserve Schmidt Armaturen GmbH in
Villach, Austria

2004 - 2005 Technical Assistant at *OMV Exploration
& Production GmbH* (Project
Management dept.) in Vienna, Austria
(www.omv.com)

2006 - 2010 Freelancer at *OMV Exploration &
Production GmbH* (support of
Operations Geology and trainer for
geological-reporting software)

List of Scientific Publications

Hossain Kamrul, Timo Koivurova and Gerald Zojer (2014): Understanding risks associated with offshore hydrocarbon development. In: Elisabeth Tedsen, Sandra Cavalieri and Andreas R. Kraemer (eds.): Arctic Marine Governance: Opportunities for Transatlantic Cooperation. Berlin and Heidelberg: Springer, pp. 159-176.

Zojer, Gerald (forthcoming): BOOK REVIEW: Haydn Washington, 2013: Human Dependence on Nature. How to help solve the environmental crisis. In: The Yearbook of Polar Law, Vol. 6.

Contributions to Scientific Events and Conferences

“De-democratization of the control over natural resources: The commercialization of the European water market” (Presentation at the Calotte Academy, May 28th - June 06th, 2012)

“Energy politics in the Arctic Council. A shift from environmental protection toward resource management?” (Presentation at the Calotte Academy, May 16th – May 23rd 2013)

“Hydrocarbons and Arctic Governance. From environmental protection to economic development.” (Poster-Presentation at “In the Spirit of the Rovaniemi Process” Conference, Rovaniemi, December 2nd-4th, 2013)

Grants

2013: KWA (grant for short term scientific research abroad), University of Vienna