

## **Arctic governability : A wicked problem?**

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## **Abstract**

The world's interest in the Arctic region has been rising as well as the awareness of climate change and disappearance of ice cover in the region. From being seen as a 'frozen desert' the Arctic region is nowadays perceived, as a place for cooperation among Arctic states and other actors, from non-Arctic states to non-governmental organizations, like WWF and Greenpeace. The governance system in the region is unique, but it is challenged at different levels and within different dimensions. The governing system in the region faces different problems, which it has to deal with. Some of problems, such as climate change, are considered to be wicked, as their definitions as well as solutions are highly dependent on views and interests of ones who are looking at them. All this affects the governing process of the Arctic, which is, in fact, a wicked problem itself.

The overall aim of this work is to investigate on governing the Arctic being a wicked problem by answering following questions:

- 1.** What are the properties of Arctic governance that make it a wicked problem?
- 2.** What are the challenges and properties of Arctic governance, which lower governability of the region?

The thesis determines wickedness of the Arctic governance and highlights properties of elements of the governance system of the region, which contribute to this wickedness.

Key words: wicked problem, the Arctic region, Arctic governance, governability, governability assessment, interactive governance approach.

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## **List of abbreviations**

<b>AC</b>	Arctic Council
<b>AEPS</b>	Arctic Environmental Protection Strategy
<b>AMAP</b>	Arctic Monitoring and Assessment Program
<b>BEAC</b>	Barents Euro-Arctic Council
<b>BEAR</b>	Barents Euro-Arctic Region
<b>CBSS</b>	Council of Baltic Sea States
<b>EEZ</b>	Exclusive Economic Zone
<b>IGA</b>	Interactive Governance Approach
<b>IMO</b>	International Maritime Organization
<b>MOSPA</b>	Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response in the Arctic
<b>NGO</b>	Non-governmental Organization
<b>NATO</b>	North Atlantic Treaty Organization
<b>NC</b>	Nordic Council
<b>NCM</b>	Nordic Council of Ministers
<b>NEAFC</b>	Northeast Atlantic Fisheries Commission
<b>nm</b>	Nautical mile
<b>SAR</b>	Agreement on Cooperation on Aeronautical and Marine Search and Rescue in the Arctic
<b>EU</b>	European Union
<b>UN</b>	United Nations
<b>UNCLOS</b>	United Nations Convention on the Law of the Sea

## Introduction

The Arctic is the region, which captures international attention from all over the globe. It is unique territory, which brings Arctic coastal states to cooperate with each other as well as with other international actors. The Arctic is a fragile region, where climate change is most visible; an area with potential of being new petroleum resource base. It is the region with slow but steady growth of government structures as a result of Arctic states' goals to strengthen multilateral procedures whilst ensuring their own national traditions and interests. But how to govern it effectively without infringing any state's sovereignty and autonomy of native peoples and considering its further sustainable development in terms of changing climate and environment (Haferndorn, 2013)? In fact, is governing the Arctic a type of problem, which is labelled by some scholars as *wicked*?

The aim of this thesis is to investigate on governing the Arctic being a wicked problem by answering following questions:

1. What are the properties of the Arctic governing that make it a wicked problem?
2. What are the challenges and properties of the Arctic governance, which lower governability of the region?

To answer the questions, we used the following thesis structure. In the *first chapter* basic background on the Arctic region is introduced. Particularly, its definition, legal and institutional framework, and difficulties which governors of the region face are described. In the *second chapter* theory on wicked problems and interactive governance approach is present, including framework for governability assessments. The *Third chapter* includes governability assessment of the Arctic region, with focus on system to-be-governed, governing system and governing interactions and its properties. The *Fourth chapter* presents discussion of the assessment and governing the Arctic region as a wicked problem. After the fourth chapter conclusions are drawn.

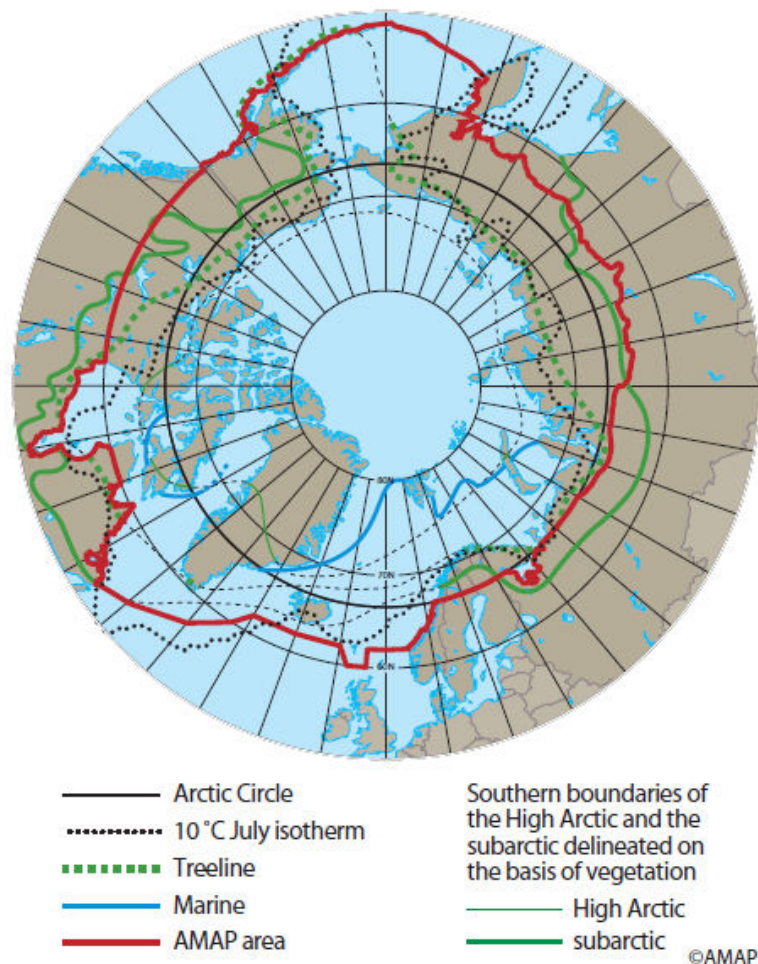
# 1 Basic Background

## 1.1 Definition of the Arctic region

There is no universal definition of the Arctic region, but a range of definitions, depending on specific or scientific interests.

Geographical definition determines the Arctic as “*all of the Earth north of the Arctic Circle, located at approximately 66 degrees, 34 minutes North Latitude*” (Source: <http://www.arctic.noaa.gov>)

Such criteria as, for example, vegetation, 10°C July isotherm, the southernmost extent of winter sea ice, treeline are also used to determine the region (Figure 1.1)



**Figure 1.1** – Boundaries of the Arctic region, depending on the criteria (Source: [www.amap.no](http://www.amap.no))



For this work, the following definition is used: *the Arctic* is the area around the North Pole, north of the Arctic Circle. It consists of the Arctic Ocean and territories of the eight states: Canada, Denmark (through Greenland), Finland, Iceland, Norway, Russia, Sweden, and the United States. Herewith, the states themselves define whether their Arctic areas start, corresponding to their own purposes (Koivurouva, 2009).

According to the estimations, approximately 4 million people live north of the Polar Circle. Ten percent of the people living there are indigenous (Adam et. al, 2014).

## **1.2 Legal Framework in the Arctic region**

The Arctic is the region representing an ocean surrounded by continents and nations. Therefore, the region is governed by the laws for the seas or territorial policies of the Arctic countries (Byers, 2013).

Rights and duties of the Arctic states are defined by the United Nations Convention on the Law of the Sea (UNCLOS) and by its implementation agreements, the Part XI Deep Sea Bed Mining Agreement and the Fish Stock Agreement. There are also conventions of International Maritime organisation (IMO), which deal with Safety of Life on Sea (SOLAS), Prevention of Marine Pollution (MARPOL), Oil Pollution Preparedness, Response and Cooperation (OPRC), Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and Protection of Arctic Flora and Fauna (ICRW).

There are some other conventions and agreements to regulate specific aspects in the Arctic connected with fisheries, land and marine mammals, energy resources and pollution (Proelss, 2008). Thus, there are two binding agreements concluded by the Arctic States under the auspices of the Arctic Council (AC): Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (SAR) and Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response in the Arctic (MOSPA).

SAR agreement is a tool that determines measures to enhance search and rescue coordination and cooperation in the Arctic through improvement of communication and division of responsibilities (Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, 2011).

MOSPA aims to enhance cooperation, coordination and mutual assistance among the eight Arctic states on oil pollution preparedness and response to it in the Arctic in scopes of

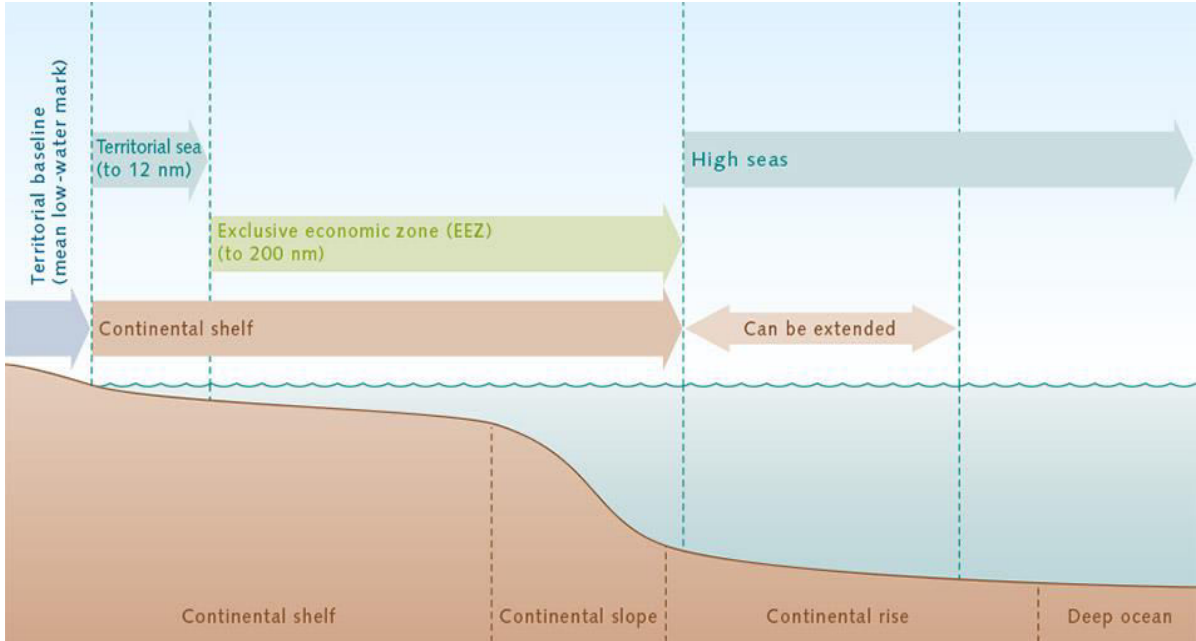
marine environment protection (Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response in the Arctic, 2013).

### 1.2.1 UNCLOS

Among mentioned agreements and laws, The United Nations Convention on the Law of the Sea, or UNCLOS, is the cornerstone of legal framework for the Arctic and the Arctic Ocean and determines property rights together with rules for regional governance.

UNCLOS entered into force in 1994, after being opened for signature in Montego Bay, Jamaica in 1982. By the June 2016, UNCLOS has been ratified by 167 states and by the European Union, including all Arctic states except for the United States (Source: <http://www.un.org>). However, the United States committed to follow the institutional framework and regulation implied by UNCLOS (Byers, 2013).

UNCLOS determines boundaries of territorial sovereignty from the coast to the high seas and establishes the rights of coastal nations, specifying such maritime zones as internal waters, territorial waters, contiguous zone, exclusive economic zone (EEZ), continental shelf limit, and international, waters (Figure 1.2).



**Figure 1.2** – Maritime zones according to UNCLOS (Source: <http://worldoceanreview.com>)

According to UNCLOS, within the zone of internal waters (waters on the landward side of the baseline of a nation's territorial waters) the coastal state has the full sovereignty. Therefore, the state can freely regulate navigation and resource exploitation. Foreign nations do not have the right of passage in these waters.

In territorial waters (Figure 1.2) the state has the right to regulate resource exploitation. Foreign nations have the right of innocent passage in these waters (i.e., the passage is not prejudicial to the peace, good order or security of the coastal State) (UNCLOS, 1982).

After territorial waters, comes contiguous zone and it goes for 12 nm further. In this zone the coastal state has the right to enforce laws, which prohibit smuggling and illegal immigration activities (UNCLOS, 1982).

The contiguous zone is followed by EEZ (zone within 200 nm from the coastal baseline). There the coastal state has special rights on natural resources, i.e. the state has the exclusive right to fish, oil, conducting scientific research, building structure, having economic activity or enforcing law to protect ecosystem (UNCLOS, 1982).

EEZ could be extended, if the coastal state's continental margin extends beyond 200 nm, but no more than 350 nm from the coast baseline. Thus, this condition is important since it provides the exclusive right to explore and exploit resources within the continental shelf seabed and subsoil. Nevertheless, this right does not cover the water column above the continental margin (UNCLOS, 1982).

Some of the EEZs are overlapping, but bilateral agreements have been implied for almost all of such EEZs, except a case of a dispute between Canada and Denmark over Hans Island (Byers, 2013).

It is also interesting to mention that there is only one article in UNCLOS, which specifically refers to the Polar Region, Article 234. This part of UNCLOS authorizes coastal states to develop and manage special regulations when it comes to human activities in ice-covered waters and promotes upgrade of control by coastal states over their waterways, while not abrogating the right of the other nations for innocent travel or transit passage (Haftendorn, 2013).

### **1.3 Institutional network in the Arctic**

The institutional network is especially dense in the Nordic Space and the Northern Atlantic region. So, in 1952 Denmark, Finland, Iceland, Norway and Finland formed Nordic

Council (NC) and Nordic Council of Ministers to discuss a wide range of issues, including defence (Haftendorn, 2013). To involve Russian Federation and its Northwest region, the Barents Euro-Arctic Region (BEAR) and the Barents Euro-Arctic Council (BEAC) were established on a Norwegian proposal in 1993, and nowadays include such members as Denmark, Finland, Iceland, Norway, Russia, Sweden and European Commission. Herewith, such institutions as the BEAC Secretariat and Barents Institute (BI) in Kirkenes were founded (Haftendorn, 2013).

There is also the Council of Baltic Sea States (CBSS), which is made for cooperation in the Baltic region and was established in 1992. It composed of Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia, and Sweden (Source: <http://www.cbss.org>).

The European Union is also a part of Arctic governance with its Northern Dimension Partnership Program. It is a joint policy between EU, Russia, Norway, and Iceland, which promotes dialogue and stability in the region (Haftendorn, 2013).

Herewith, the Arctic Council, which was mentioned before, is considered to be '*the very linchpin of Arctic governance*' (Haftendorn, 2013). It is formed by so-called the Arctic Eight: Canada, Denmark, Norway, the United States, Russian Federation, Finland, Sweden and Iceland. AC evolved from the Arctic Environmental Protection Strategy (AEPS), which was adopted in 1991, following gathering of Finland, Canada, Denmark, Iceland, Norway and Soviet Union in 1989 in scopes of discussion on Arctic region protection (Haftendorn, 2013).

Before focusing on the Arctic Council, it is important to mention that such actor as the Arctic Five is also seen to be a large influence in the governing process of the Arctic region (Voronkov, 2013). The Arctic five includes such countries as Canada, Denmark (through Greenland), Norway, the United States of America and the Russian Federation. The countries are coastal states to the Arctic Ocean.

The first meeting of the Arctic Five happened in Illuissiat, Greenland, in May 2008. The result of the meeting was adoption of the Illuissiat Declaration. The Declaration claims that there is no need to set up new legal regime to govern the Arctic Ocean. The existing the Law of the Sea is seen as a solid framework to manage the Arctic Ocean by the Arctic Coastal States in a responsible way. The declaration also stated an intention to preserve the unique ecosystem of the Arctic region (Voronkov, 2013).

The second meeting of the five countries was held in Chelsea, Canada, in March 2010. The countries declared their plan to cooperate on different questions, from determination of continental shelve borders to the strengthening of shipping safety. The Arctic Five became an

influential factor in relations regarding to the Arctic region, being represented in Arctic Council by all its members (Vorontkov, 2013).

### **1.3.1 Arctic Council**

As mentioned before, the AC is represented by the countries of the Arctic Eight. These countries are coastal states plus three non-coastal states, which are Sweden, Finland, and Iceland.

The AC was formed in 1996 and has aimed to promote cooperation, coordination, and interaction among the Arctic States, with regard to indigenous people and their involvement in sustainable development and environmental protection. Herewith, its declaration excludes dealing with military issues. The decision-making process of the AC is based on the principle of consensus (Arctic Council, 1996).

The AC's scientific work is done through working groups and task forces, each of which operates according to its mandate. Every working group has a representative from a member-country, and management board or steering committee, which formed of representatives from national government agencies and Permanent Participants. Working groups are supported by secretariat. Working groups report to the Senior Arctic Officials on a regular basis, the latter adapts mandates for working groups and task forces when necessary, and prepares reports for Ministerial meetings (Haftendorn, 2013).

There are six working groups and several task forces in the AC. Working groups are: The Arctic Contaminants Action Plan Working Group (ACAP); The Arctic Monitoring and Assessment Program Working Group (AMAP); The Conservation of Arctic Flora and Fauna Working Group (CAFF); The Emergency Prevention, Preparedness and Response Working Group (EPPR); The Protection of the Arctic Marine Environment Working Group (PAME); The Sustainable Development Working Group (SDWG). Task forces operate within framework of the AC and appointed to for specific issues for a limited time, until they produce the desired results of their work. At the moment there are task forces on Institutional Issues, on Arctic Marine Oil Pollution Preparedness and Response, on Short-Lived Climate Forcers and on Search and Rescue (Haftendorn, 2013).

The AC could be defined as the closed body, since according to its rules the admission of new members is excluded. Nevertheless, there is a possibility to admit new permanent participants or observers. Six indigenous organizations were awarded the status of permanent participants; they include the Arctic Athabaskan Council, the Aleut International Association, the Gwich'in Council International, the Inuit Circumpolar Council, the Russian Arctic

Indigenous Peoples of the North, and the Sámi Council. A permanent observer can participate in all meetings and activities of AC and have the right to be consulted by the AC, but the decision-making process is only reserved for the Arctic Eight (Arctic Council, 1998).

As for observers, according to the Rules of Procedure of the AC, non-Arctic states, inter-governmental and inter-parliamentary organizations, and NGOs can get the status of observers of the AC. As well as permanent participants, observers are not involved in the decision-making processes of the AC. At the moment twelve non-Arctic states, 9 inter-governmental and inter-parliamentary organizations, and eleven NGOs have the status of observers of the AC. The EU is pending status of observer, being an ad hoc observer of the AC (Source: <http://www.arctic-council.org>).

At the moment, the AC is the most important and visible institution in the Arctic region. Nevertheless, it is more of a decision-shaping institution than decision-making. Moreover, as discussed by some scholars, the AC has a weak organizational structure and needs better integration within its dimensions of knowledge. It also excludes such issues as defence, which is of importance when it comes to development in the Arctic region (Hafterndorn, 2013). As it would be discussed further, some Arctic states have in their strategies goals of strengthening the body and to improve its work as a tool for international governance of the Arctic.

## **1.4 Arctic Policies of the Arctic Eight**

Discussing Arctic Region and its governing, it is important to discuss strategies of the main actors in the Arctic region, i.e. the Arctic Eight, as later on it would help to understand whether countries have common attitude towards region development or there are any conflicts which could arise in the governing process.

To summarize the strategies of the countries, such directions as military security and countries' sovereignty, knowledge, environmental issues, resources extraction and economic development, indigenous people and cooperation could be used (Table 1.1).

When it comes to sovereignty issues and military security, most countries strategies mention the importance of their sovereignty, authority and the exercising of this in the Arctic region. The exceptions are Iceland and Sweden, which do not focus on sovereignty or military presence in the Arctic region, with Iceland's promotion of work against any militarization. With this, Russia, the U.S. and Canada stress the importance of solving boundary issues:

Russia is interested in maritime zones delimitation, while the U.S. and Canada have to solve such issues as, for example, Canada's sovereignty over its Arctic Islands (Table 1.1).

Additionally most countries underline importance of research and science in sustainable management of the region. Russia is also focused on improvement of technologies in order to contribute to economic development of the region. The U.S. mentions traditional knowledge as an important tool in decision-making process, while other countries are not referring to it. Norway has a goal to be the leader in knowledge in the region; while in contrast, Iceland seeks international scientific cooperation rather than a leadership role in the field (Table 1.1).

As previously mentioned, cooperation among the Arctic Eight through AC evolved from the Arctic Environmental Protection Strategy, so, unsurprisingly, all the countries have environmental protection and sustainable development of the region highlighted in their strategies. Among the countries, Sweden is distinct; pointing that work on international agreement on minimizing of mercury and organic pollutants is needed. The country also promotes spatial planning and ecosystem-based management in the region. Norway and Russia also underline maritime safety, with Russia stressing creation of uniform Arctic search and rescue regime (Table 1.1).

According to the US Geological Survey of 2008, the Arctic region has about 30 percent of the world's undiscovered gas and 13 percent of its oil, those kinds of natural resources are of high priority in most strategies. Even Sweden highlights petroleum resources in its strategy more than mining; despite the latter being the key industry in the Northern part of the country (Heininen, 2012). The U.S., Norway, Russia and Finland also point out the problem of infrastructure and its development. Unlike most of the countries, Iceland put its focus on international trade, and fishery is the key industry for the country in terms of use of offshore resources (Table 1.1).

In its strategies, the Arctic Eight promote rights of indigenous people as an important issue. Nevertheless, the U.S. only discusses need of consultation with Alaska natives, but does not put indigenous people issues as its key priorities. Sweden is also distinct in the field by emphasizing a need to preserve indigenous languages and to improve political activity in terms of its availability to both younger people and women. As in the U.S., Sweden also promotes the necessity of both consultation and cooperation with its indigenous Sámi people (Table 1.1).

Cooperation is an essential for the Arctic Eight in the region, and, as was mentioned before, there are a number of institutions to work regionally in the Arctic, with the AC being a

cornerstone. Thus, the AC is often mentioned in the strategies of the countries with either a broader aim to work internationally within the body, or to aim to straighten and improve the council. It is also important to mention that countries also promote cooperation with specific actors, according to their interests and geo-political features. Thus, Norway highlights cooperation with Russia, and their agreement on dispute in 2010 (Barents Treaty) might be seen as successful implementation of countries strategies in terms of cooperation. Finland and Sweden focus on the role of EU in the governing process of the Arctic region, while the U.S. speaks about same role of UN and the Kingdom of Denmark emphasizes NATO in this context. The Kingdom of Denmark is also being more focused on cooperation not among the Arctic Eight, but the Arctic Five and includes in its interests bilateral cooperation with China, Japan and South Korea. Iceland, as well as Sweden seeks to secure their influence on the governing processes occurring in the Arctic region. Except discussing cooperation in the Arctic in general, Russia aims to improve cooperation within BEAC and international forums (Table 1.1).



**Table 1.1 – Summary of Arctic Strategies of the Arctic Eight (Government of Canada, 2009, 2010; Norwegian Ministry of Foreign Affairs, 2009, 2011; The White House 2009, 2013; Denmark, Greenland and the Faroe Islands, 2011; Government Offices of Sweden, 2011; Parliament of Iceland, 2011; Bailes & Heinen, 2012; Heininen, 2012; Prime Minister’s Office Finland, 2013).**

	<b>Norway</b>	<b>Russia</b>	<b>Canada and the U.S.</b>	<b>Finland</b>	<b>Kingdom of Denmark</b>	<b>Iceland</b>	<b>Sweden</b>
<b>Military security and sovereignty</b>	Aim to exercise authority and sovereignty firmly; mention of military presence in the Norwegian Arctic.	Intention for delimitation of maritime zones; maintaining of presence at Svalbard archipelago.	Exercising sovereignty and authority; boundary issues; strengthening of military presence in the region.	Stressing importance of internal security.	Focus on sovereignty and national security.	Importance of sovereignty is not discussed; promoting against any militarization	No focus on sovereignty or military questions.
<b>Knowledge</b>	Aim to be leader in knowledge development; focus on knowledge on climate change and the environment of the region.	Aim to increase support of scientific research to improve management of the Arctic; improvement of technological capabilities.	Promotion of basing decisions on best available information, including traditional knowledge.	Education and research are one of five key priorities of the Arctic policy.	Faroe Islands promote itself as a centre for education in the Northeast Atlantic.	Promotion of scientific cooperation among the Arctic States.	Promotion of environmental research.
<b>Environmental Issues</b>	Aim to be the best steward of the environment; aim to improve monitoring, maritime safety and emergency response.	Aim to prevent man-made accidents; protection of the Arctic environment.	Focus on environmentally sustainable managements of natural resources.	Environment is one of the key orientations in the policy.	Focus on climate change, protection of the environment and biodiversity.	Promise to contribute into sustainable resources utilization and conservation of biota.	Climate and environment is one of the three key priorities of the strategy; discussion on reduction of emissions, ecosystem-based marine management.

<b>Resources extraction and region development</b>	Aim to be the best steward of natural resources; promotion of sustainable use of offshore petroleum resources and renewable marine resources; aim to develop infrastructure in the North.	Aim to improve use of cross-polar air routes and the Northern sea route; improvement of social and economic development of the Arctic and its resource base; modernization and development of infrastructure and fisheries in the Russian Arctic.	Economic development, extraction and utilization of natural resources are of high priority; focus on transportation problems; promotion of 'Freedom of the Seas'.	Business operations of the country, including resource-based industries and transportation are of high priority.	Focus on offshore natural resources.	Promotion of sustainable development of fishery; discuss development of trade relations in the Arctic.	Economic development is of high priority; spatial planning for marine zone; highlight on petroleum industry; mentions forestry and mining activity.
<b>Indigenous people</b>	Aim to safeguard the livelihoods, traditions and cultures of indigenous people.	Aim to improve the quality of life for indigenous people and their social and economic activities.	Highlight on the coordination and consultation with Alaska Natives in the U.S. strategy. Rights of indigenous people are of high priority for Canada.	Focus on Finnish Arctic population and its sustainable development.	Promotion of reinforcing the indigenous people's rights.	Highlight on the rights of indigenous people.	Highlight on care of people in the Arctic and their living conditions; aim to promote preservation of indigenous languages and participation of young people and women in political processes; promotion of consultation and cooperation with Sami.
<b>Cooperation</b>	Development of people-to-people cooperation; enforcement of cooperation with Russia.	Interaction with sub-Arctic states; enhance of bilateral cooperation through the AC and BEAC; contribution to international Arctic forums.	Promotion of international governance of the Arctic through the AC; cooperation among the Arctic Eight with help of UN; the U.S. promotes cooperation with the state of Alaska.	International cooperation is of high priority; emphasizes role of EU and promotes strengthening of the AC.	Promotion of enhancement of cooperation among the Arctic 5 and importance of NATO; bilateral cooperation with China, Japan and South Korea.	Focus on improvements of trade relations with other Arctic states; aims to secure its position as coastal state and its influence on international decisions in the Arctic region.	Aim to straighten the AC and role of the country in decision-making processes in the Arctic; promotion of EU as a relevant cooperation partner in the High North.

## **1.5 Other stakeholders in the Arctic region**

Apart from the Arctic Eight, there are a number of organizations and countries which are interested in the region development and which have their own policies regarding the Arctic. Traditionally, Arctic stakeholders were defined as the Arctic nations and people who inhabit the North (i.e. previously mentioned the Arctic Eight) (Jegorova, 2013). Nevertheless, since international players have become both more interested and present in the region, it has become challenging to define who could be considered as Arctic stakeholder and why. (Lanteigne, 2014).

First of all, in the list of other stakeholders in the Arctic twelve countries, which are permanent observers of the AC, should be mentioned. They are France, Germany, Netherlands, Poland, Spain, the United Kingdom, China, Italy, Japan, South Korea, Singapore, and India. As explained before, despite being permanent observers these countries cannot take a part in decision-making processes of the AC, they can only indirectly influence its decisions by taking part in the meetings and activities conducted by the AC.

Besides them, there are also 9 inter-governmental and inter-parliamentary organizations, and eleven NGOs, as previously mentioned, which also have status of permanent observers in the AC and have different interests, which are in economic, environmental, scientific and human dimensions.

There are a wide range of other international stakeholders, but in this section the focus is not on all of them, but on the EU and NATO, as both bodies are indirectly represented in the AC by its members and have been mentioned in their Arctic strategies.

### **1.5.1 European Union**

Let us go more into detail about the EU as an actor in the Arctic region. There are, at least, two reasons to do so. First of all, the EU aims to ensure stable relationships with the members of the AC: three members of the AC are also members of EU (Finland, Denmark, Sweden); Norway and Iceland are members of European Free Trade Association and signed the European Economic Area Agreement in 1994; the US, Canada and Russia are strategic partners for the Union. Secondly, EU policies on environment, fishery, climate change, biodiversity and other dimensions have an impact on the Arctic region. So, due to its Policy on Climate change, which is widely considered to be the most advanced in the world, the EU has reasons to be present in the Arctic and its governance in terms of environmental issues.

Herewith, the EU has great interest in Arctic resources, living and non-living. Thus, the Union has been active in the fishery question, proposing a moratorium for fishing in the Arctic unless the behaviour of marine species there is better investigated, and highlighted a need for a legal framework for the waters which are not yet internationally regulated in the Arctic. It aims to improve management of fishing activities, strengthening cooperation, practising the sharing of information and research data. Besides the mentioned reasons to be involved to the governing of the Arctic, there are also shipping issues, which are of the EU's interest. Particularly, it is important for the Union to defend the principle of freedom of the navigation and innocent passage in Arctic waters, together with avoiding discrimination of third countries by the Arctic coastal states. In questions regarding the exploration of natural resources from the seabed the EU is quite accurate, promoting necessity to introduce international standards (Perez & Yaneva, 2016).

The EU has been working on its own Arctic policy since 2008, when EU High Representative and the Commission released a joint report on Climate Change and International Security, which included suggestion on the draft for Arctic Policy. Nevertheless by the moment it is considered that there is no coherent Arctic Policy from the Union and the process of such policy adoption is unclear; the latter might be explained by hardness to achieve harmony among all the EU members and specificity of work of the Union. Nevertheless, there is progress seen in the last Joint Communication (High Representative and the European Commission, 2016), as it has a division between Circumpolar and European Arctic issues, and promotes need for the investments in the European area and improved internal coordination in the region. Herewith, there is a concrete plan of future actions of EU in the Arctic, with stress on science, technologies, funding and the Union's ability to contribute into sustainable development and economic progress in the Arctic (Perez & Yaneva, 2016).

At the moment EU is ad hoc observer of the AC, but pending to be a permanent observer. In fact, there is no big difference between these two statuses, but becoming a full observer would bring recognition of EU as legitimate Arctic stakeholder. Nevertheless, to obtain this status, the Union has to engage more with its Arctic partners and be aware of their concerns. So, for example, there were problems with obtaining the status before, since EU had ban on import of seal products, which led to neglecting Canada's interests (Perez & Yaneva, 2016).

### **1.5.2 NATO**

This is important to mention NATO as an actor in the Arctic region. Four countries out of the Arctic Five are members of NATO, except Russian Federation. Its role as a partner in the Arctic is promoted in Arctic policies of these countries.

The region is of military interest for the organization, though being yet not militarized area. NATO has military exercises in the Arctic, which are conducted on a regular basis by single countries or jointly. The organization installs radars and tracking stations in Alaska, Greenland and Northern Canada (Voronkov, 2013).

At its meeting in Reykjavik in 2009, NATO pointed out new challenges for the Arctic security, particularly, climate change, ice melting, growing access to natural resources and possibility of new shipping route. It also promoted itself as organization to address need to maintain 'soft security in the region'. Nevertheless, it is considered that NATO has limited capabilities to deal with these problems, and such issues should be rather solved through regional bodies in the Arctic, than through possible military pressure (Voronkon, 2013).

Avoiding mentioning the Arctic in its New Strategic Defence and Security Concept adopted in 2010, NATO has recently discussed the need to create its policy for the Arctic region. Particularly, it was mentioned during the summit this year, where organization also pointed out importance to secure the region, especially considering the fact of rising military presence of Russian Federation there (Coffey & Kochis, 2016).

One could consider NATO not being key player in the Arctic region. Nevertheless, its interests and presence there should be considered since the organization as well as Russian Federation brings military issue to the number of challenges in the region. Herewith, it is essential to remember that the AC does exclude military issues from directions of its work.

## **1.6 Challenges in the Arctic: what 'governors' of the region are facing**

Challenges in the region and its governing might be seen from three dimensions: environmental, economic and human, herewith, climate change in the region has a great impact on all of them.

The Arctic region has been changing during the last 30 years. Some of the clearest indications of changing process are warming of spring temperatures, the loss of sea ice area in

the central Arctic, conversion of tundra to wetlands and shrub lands. The first two months of 2016 set new records in the Arctic, with the warmest January and February on record, and the lowest sea ice cover in February (Source: <http://www.arctic.noaa.gov>). According to NOAA Arctic Research Program, changes in the Arctic region in the last decade are continuing, major and unprecedented.

When it comes to the environment, changes happening in the Arctic would affect the arctic ecosystem itself. Lowering of ice-cover results in release of carbon dioxide and methane, what brings impacts on wildlife and vegetation. Other impacts which climate change is bringing about include increase in short-lived climate pollutants, ocean acidification and changes in marine ecosystem, general change in precipitation patterns causing more extreme weather conditions (USARC, 2013).

These changes affect human dimension, i.e. people living in the Arctic region and their livelihood, changing traditional harvesting activities and transportation routes (USARC, 2013). This becomes more complicated in the context of how indigenous people influence the decision-making processes in the region. Even though, the Arctic is a space where indigenous peoples are more represented at national and international level of government, compared to other parts of the world, their inability to influence policy is of concern (Haferndorn, 2013).

Economic implications which changing climate would bring in the Arctic include the possibility of new sea routes, the possibility of more intense development of resource base, changes in fisheries' target species and areas.

According to some predictions, by mid-century sea ice conditions would enable navigation along the Northern Sea Route, over the North Pole, and through the Northwest Passage (Smith & Stephenson, 2013). This route may save up to 5000 miles to connect Europe to Asia in comparison with routes commonly used nowadays (Isted, 2009). Governing the Arctic in the future, it is important to make sure that navigation in case of opening of the route is regulated. It is also essential to avoid side effects of over-development, which can occur in the region once route is opened. Nevertheless, geophysical projections on how exactly change in sea ice would impact the navigation are still lacking (Smith & Stephenson, 2013).

The fact that the area north of the Arctic Circle contains around 30 percent of the world's undiscovered gas and 13 percent of the world's undiscovered oil (according to the US Geological Survey of 2008) and possibility of region to become more available can bring another complication for governing of the region. Herewith, most of the undiscovered natural resources lie inside the EEZs of the Arctic states, and 84 percent of them offshore

(Koivurouva et al., 2015; US Geological Survey, 2009). The Arctic states will face challenges of development and exploitation of the resources under harsh conditions and have to enhance measures connected to protection of ecosystem of the region. Among such challenges is a “battle for the Pole” which might begin because of presence of ‘black gold’ in the region. Nevertheless, it is important to mention that the race for the resources in the Arctic is not really indicated (Haftendorn, 2013).

Climate change in the region would also bring added challenges to fisheries based in the Arctic and its regulations. Change in fish species migration patterns, in species composition might be faced in the future (USARC, 2013). Herewith, only 8 percent of the Central Arctic Ocean is regulated and supervised by the Northeast Atlantic Fisheries Commission (NEAFC) (PEW Charitable Trusts, Oceans North, 2014). UNCLOS determines that for the remaining part of the ocean the states in question may conclude agreements among themselves. Cooperation towards fisheries regulations in these areas is needed, as those waters might appear to be rich in fish resources in the future. It is also important to underline that, again, indigenous people would have to adjust to changes in this field.

It is also important to keep cooperation in the Arctic region at successful level to develop region in sustainable way, even in terms of geopolitical challenges, as there are tensions between Russia and Western countries following the events that occurred in Ukraine and Crimea (Hafterndorn, 2013). As was mentioned before, Arctic states themselves see cooperation in the region being of high priority, and some of them discuss strengthening existing institutions of governance in the region.

## 2 Methodology

This thesis is theoretical research based on secondary sources of data. The main approach of this work is qualitative analysis of national strategies, declarations, agreements, reports, and scholar literature.

### 2.1 Data collection

Secondary data is the type of information used in this work. It was obtained from books, articles, reports, and strategies. Generally, information was found in the Internet with use of scholar.google.com, sciencedirect.com and springer.com. Information from such fields as governance, wicked problems, ecological characteristic of the Arctic, Arctic policies, the Arctic Council, Arctic governance, UNCLOS, institutional and legal framework in the Arctic region, interactive governance approach, indigenous people in the Arctic, climate change was collected to write this work. Summary of the Arctic policies of the Arctic Eight is done through studying the released strategies of each country with support of articles by Bailes & Heinen (2012) and Heininen (2012). The thesis is inspired by work of Haftendorn “*The case for Arctic governance: The Arctic Puzzle*” (2013). Theoretical framework on wicked problems is generally based on papers of Head (2008) and Roberts (2006). Theoretical framework on interactive governance approach and governability assessment is based on articles of Jentoft and Chuenpagdee (2009, 2013 a, b). Also two master students’ theses are examined and structure of this work is partly inspired by them: Milazzo (2015) and Ikonen (2015).

There are some limitations related to data collection for this work. First of all, when accessing information on strategies and policies of the Arctic states in the Arctic region, it should be considered that there is no critical information from officials of the states. Secondly, there is a language limitation, which reduces availability of information, as only information in English has been used in this work. Another limitation is brought by the fact that complex assessment of ecosystem of the Arctic used in this work was made in 1998, and since that time there could be significant changes in some aspects. Other issues relate to limited time: in the condition of having more time, primary data would have been collected through interviews with stakeholders in the Arctic region. It can also be mentioned that there are more articles and researches dealing with the Arctic governance on regional level, rather than national or international levels of governance.



## **2.2 Data analysis**

Data is analysed within interactive governance approach. Analysis is performed with use of governability framework offered by Jentoft and Chuenpagdee (2009, 2013 a, b). Governability assessment of the Arctic region follows two stages. Firstly, it is determined if governing the Arctic region is a wicked problem; secondly, the Arctic region is examined with use of interactive governance approach (IGA) and governability assessment matrix.

## 3 Theoretical background

### 3.1 Wicked problems

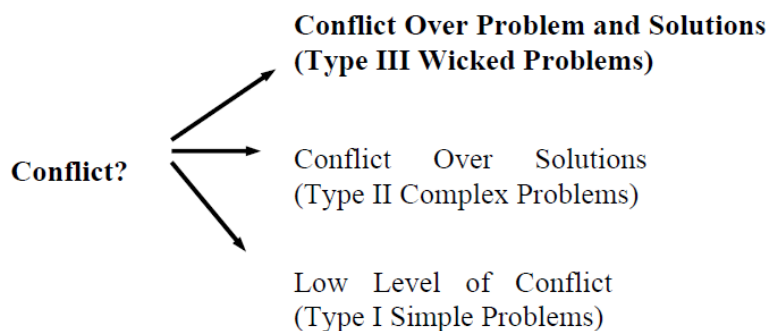
#### 3.1.1 Distinguishing wicked problems

There is a class of complex, intractable and open-ended problems in government and policy-making sector. It is hard to find either its definition or solution. Such problems were named as *wicked*.

Conklin and Weil (1997) define the following four main characteristics of wicked problems:

1. There is no definitive statement of the problem;
2. Problem solving process is fundamentally social and stakeholders tend to accept problem definition corresponding to their preferred solutions;
3. To solve a problem is a complex process since constraints are constantly changing;
4. Solution to a problem is not definitive. The process of problem solving ends when you run out of resources, i.e. time, money, energy, etc.

To distinguish wicked problems from other types of problems, following concept of three problem types (Roberts, 2006) can also be used (Figure 3.1).



**Figure 3.1** – Types of problems (adopted from Roberts, 2006)

*Simple* or *Type I* Problems are characterized by low level of conflict and consensus on problem definition and solution (Roberts, 2006). For example, a group of mechanics at Formula 1 agree that the car they are responsible for is broken, and agree on how to repair it.

*Complex* or *Type II* Problems appear when there is agreement among problem solvers about what problem is, but there is conflict to the problem solving process itself. Such

problems tend to create conflict among stakeholders (Roberts, 2006). For example, consider a community, which faces a problem of increased criminal level. It happened because of the fact that the amount of stealing from people on the streets has significantly increased during last year. Then it comes to a debate in order to see how this problem is solved in the best possible way. Some will suggest improvement of surveillance systems on the streets as a tool to solve the problem. Others might start to think of changing the routine of police workers. Other would support programs on increasing awareness among the community and distribution of knowledge how to act in order to avoid being robbed.

*Type III or Wicked Problems* introduce a high level of conflict among the stakeholders. This means that there is neither agreement on the definition of the problem, nor agreement on its solution (Roberts, 2006). Wicked problems have uncountable causes, are hard to describe, and do not have a right answer. Classic examples of such problems are environmental degradation, terrorism, and poverty (Camillus, 2008).

### **3.1.2 The emergence of wicked problems and their main features**

The story of awareness of wicked problems started more than 30 years ago. Concerns about the problems appeared from specialists in different fields – product designers, software engineers, planners, and policy makers. These specialists warned that traditional linear methods of problem solving do not seem to work, especially when it comes to a certain class of problems (Roberts, 2006).

Thus, in paper launched in 1973, public administration critics Pressman and Widavsky speculated on impossible success of complex policy programs. According to them the required level of information and goal-clarity to successfully implement such programs (particularly, it criticized the US programs in the late 1960s) was impossible to achieve. Policy-makers should rather focus on carefully defined and manageable elements of bigger problems than become over ambitious in attempt to solve complex problem at once (Head, 2008).

Another group of critics, from the field of social policy analysis, discussed that technical approaches connected with overlooking the values, perspectives and experience of the stakeholders and people who are directly or indirectly involved into a problem. According to them, complex and difficult policy issues should be seen through competing views and value frameworks, as improvement and growth of technical and scientific expertise alone is not a solution to these issues. Such problems require deliberation and debate on problems'

nature and on finding alternative ways of describing it (Head, 2008; Rein, 1976; Schon & Rein, 1994).

Head (2008) describes famous paper of Rittel and Webber “Dilemmas in a General Theory of Planning” (1973) as the one including “*the most challenging and wide-range critique of orthodox plans rationality*”. This work underlines that solving most urban and social problems using ‘engineering’ approach is ‘out-of-date’ thing. Modern society is too pluralistic to stand imposed and artificial solutions. There are great differences in attitudes and values of different social groups’ representatives. This brings the question on the possibility of clear and agreed solutions. Science is considered to be not able to resolve major policy problems by filling the gaps in empirical knowledge (Rittel & Webber, 1973; Head, 2008).

Rittel and Webber (1973) determine ten main features of wicked problems:

1. There is no clear formulation of a wicked problem;
2. Wicked problems have no definitive solution;
3. Solutions to wicked problems are good-or-bad for the stakeholders, but never are really true-or-false;
4. Immediate and ultimate tests of a solution to a wicked problem do not exist;
5. There is no possibility to learn by trial-and-error method, therefore, any solution to a wicked problem is ‘one-shot operation’;
6. There is neither clear set of potential solutions to a wicked problem, not a well-described set of permissible operations to be included into the plan;
7. Every wicked problem is unique;
8. Every wicked problem could be seen as a symptom of another problem;
9. The existence of a discrepancy representing a wicked problem can be explained in wide range of ways, and the choice of explanations defines the nature of solution to a wicked problem;
10. The planner is not allowed to be wrong, i.e. publicity does not tolerate initiatives or experiments, which fail.

Many scholars see these features to be useful in explaining difficulties faced in areas of urban planning, social policy, and environmental and natural resources policy (Head, 2008).

## **3.2 IGA**

### **3.2.1 Governance**

Governance is not a new concept, but its understanding has been changed to give it a broader meaning. Traditionally, governance was associated with governments and their actions, while more recently this concept has started to take into account private enterprises, political parties, universities, the media, and other players, which are in different ways involved into governance (Kooiman & Bavinck, 2013).

Thus, being more traditional, governance may be defined as “*government’s ability to make and enforce rules, and to deliver services, regardless of whether that government is democratic or not*” (Fukuyama, 2013). While in this work a broader definition, offered by Botzel & Risse (2010) is used: “*Governance is the various institutionalized modes of social coordination to produce and implement collectively binding rules or to provide collective goods. Thus, governance consists of both structure and process. Governance as structure relates to institutions and actor constellations...as process pinpoints the modes of social coordination by which actors engage in rulemaking and implementation and in the provision of collective goods*”.

According to the last definition, governance can consist of both state and non-state, both formal and informal processes. Herewith, different participants and processes would have different weight, depending on what issues and common aims are addressed (Haftendorn, 2013).

### **3.2.2 Interactive governance**

Interactive governance approach assumes governing of societies through a combination of efforts. These efforts are implied corresponding to complexity, diversity and dynamics of objects and subjects of governing process. Herewith, these objects and subjects, i.e. actors, interact among each other to a different degree and in different scales. Governance acts corresponding to societal needs and visions (Kooiman & Bavick, 2013).

Kooiman and Bavick (2005) define interactive governance as “*the whole of interactions taken to solve societal problems and to create societal opportunities, including the formulation and application of principles guiding those interactions and care for institutions that enable them*”.

The main feature of this approach is emphasis on interactions between actors. These interactions provide exchange among actors, which are dealing with societal (everything with common or public dimension) problems and opportunities (Kooiman & Bavick, 2013).

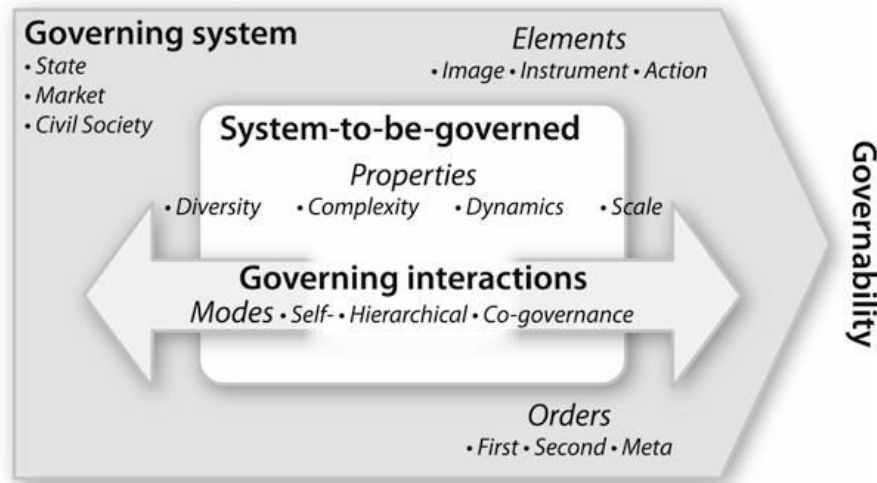
Actors according to this approach are any social unit possessing agency or power of action, from individuals to international bodies. These actors act being constrained or enabled by their surroundings, having social networks to operate within. In its turn, these social networks also include natural component. Actors influence and change these structures, but also they are influenced by these structures. Within interactive governance approach it is important to look at these both dimensions (Kooiman & Bavick, 2013).

### **3.2.3 Concept of governability**

When speaking of IGA, it is important to explain governability concept. Kooiman et. al (2008) determines governability as “*the overall capacity for governance of any societal entity or system*”. This definition implies the fact that ability of governors to solve societal problems or create opportunities is different. Herewith, these problems and opportunities are subjective, as they are dependent on vision of actors (Kooiman & Bavick, 2013). In fact, addressing different problems can become a challenge for governance, as interpretation of them is dependent on stakeholders’ vision and interests, and in real life it tends to be impossible to achieve full consensus in the process of governing (Jentoft & Chuenpagdee, 2013 a). Therefore, except fact that governance might have to deal with wicked problems in its governing process, the governing process itself can possess a wicked problem, influencing governability of any societal entity or system.

Concept of governability supposes societies or societal systems are made of three main elements (Figure 3.2): object of governance (governing system), subject of governance, (system-to-be-governed), and relationship between them (governing interactions) (Kooiman & Bavick, 2013).

Governability depends on qualities of the components of the model. So, it changes corresponding to internal and external conditions. And it is important to mention that this approach let us avoid failures in analysis, when one would only investigate to governing system, or not looking at interactions between components of the analysed system. Nevertheless, governability has its limitations. It is dependent on ability of governors to cope with challenges with are raised within system-to-be-governed. But these challenges might exceed the capacity of governing system (Jentoft, 2007; Kooiman & Bavick, 2013).



**Figure 3.2 – Governability model.**

### 3.2.4 System to-be-governed

System to-be-governed consists of two components, natural and social, being human-in-nature system. It could be represented as shown on Figure 3.3. This model, which has ‘inverted’ pyramid, expresses humans being dependent in natural system. Environmental factors, such as for example climate change, would impact social system; while in its turn humans impact ecosystem in different ways, what makes these two components being interdependent (Jentoft et al., 2010).



**Figure 3.3 – Model of system to-be-governed (Jentoft et al., 2010)**

The pyramid itself is unstable, and behaviour of people has great influence on it. To have system less vulnerable, supporting elements are needed. Building of values and principles by governing actors help system to work out in balanced way. Ethics and

responsibility do not allow the pyramid to fall, and this perception of system to-be-governed makes understanding of governability broader (Jentoft et al., 2010).

### **3.2.5 Governing system**

*Governing system* has set of mechanisms and processes to guide control and steer subject of governance. According to interactive governance theory, there are three realms of governing system: state, market and civil society (Kooiman & Bavick, 2013).

States are considered to be the most central governing entity in major part of cases. They are always present in society, and try to influence it on different levels, from national to international. It is important to keep in mind that politics is essential when dealing with states within IGA. Without political aspect the governing system is not full. Politics is a part providing establishment and negotiation of government goals, and having, therefore, importance in governability analysis (Kooiman & Bavick, 2013).

Contribution of market into governing process might be seen from different angles, depending on core discipline of the one who is looking at it. So, its role can be viewed through capacity to self-organize competition, or through competition and cooperation, or competition and power. Herewith, markets have limitations, also known as ‘market failure’ (Kooiman & Bavick, 2013).

Civil society has non-profit organisations making up its core and academic institutions together with the media as boundary cases. According to IGA, main role of civil society is in channelling of societal activities for goals of governance. Civil society is sometimes considered to bring only positive contribution into governing process. Nevertheless, it could be criticised (Kooiman & Bavick, 2013).

Even though three realms of governing system are described as clearly distinguished, it is not the case in real life. Boundaries of these realms are constantly changing (Kooiman & Bavick, 2013).

To implement governing process, governing system has three governing elements: images, instruments and action (Figure 3.2). Images help to determine problems of governing and tasks for the future. They include different things and phenomenon, from visions to knowledge. Instruments traditionally include rules, regulations, taxes, fines, and subsidies; but recently also covenants and certification have been added to this category. Action presumes that without will or support images and instruments remain not effective (Kooiman & Bavick, 2013).



There also three orders of governing existing (Figure 3.2). *First order* is implied when governing actor deal with day-to-day problems. *Second order* is about institutional network, dealing with determination of what institutions should be created for governing process. *Meta order* comes when decisions related to values and principles of governing are made (Kooiman & Bavick, 2013).

### **3.2.6 Governing interactions**

Governing interactions are relations between two or more actors, which mutually impact each other. There are two levels on which governing interactions are performed. Actor, or intentional, level and structural level (Kooiman & Bavick, 2013).

The willingness or ability of actors to take part in governing process is emphasized for actor level. Structural level is characterized by impact of governing system's and system to-be-governed properties on governing interactions (Kooiman & Bavick, 2013).

Herewith, there are three types of governing interactions (governing modes), which are distinguished by scholars. They are hierarchical, co-governing and self-governing. *Hierarchical interactions* are more usual for government interaction with citizens, but these interactions are also seen also in private sector. Hierarchical interactions are considered to be more about policy and management. *Co-governing interactions* are represented by collaboration and cooperation among different governing actors, which prefer to share governance responsibilities and activities with each other. *Self-governing interactions* are about society's ability to govern itself.

### **3.2.7 Diversity, complexity, dynamics, scale**

Those are core features used to assess governability in IGA. Directions in what governing system, system to-be-governed and governing interactions are analysed, as societal systems and environment are diverse, complex and dynamic, and interactions among them happen in different scales, what has an impact on governability of systems.

*Diversity* is dealing with heterogeneity of the system elements and it is about how variable they are. The higher diversity, the lower governability is (Jentoft & Chuenpagdee, 2009).

*Complexity* is about relationships. The system is not just a sum of its parts, but it is made up of relations among its units and among system and other external actors. Higher complexity causes lower governability. Nevertheless, it is essential to mention that our

understanding of complexity is limited, and different acts related to system might cause unpredictable element in relations (Jentoft & Chuenpagdee, 2009).

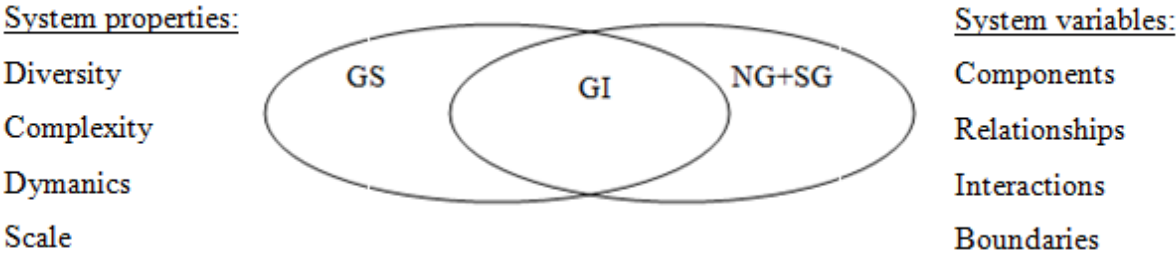
*Dynamics* is property based on fact that systems are changing over time, either linearly or unexpectedly and unpredictably. It may happen due to external or internal factors, and governability here would be explained as ability of system to respond to such factors (Jentoft & Chuenpagdee, 2009).

*Scale* is mainly related to spatial dimension of the system. So, system-to-be-governed, governing system may be present at different levels: national, regional, and international. It is supposed that the larger scale causes higher diversity, complexity and dynamics, what makes governability to be lower (Jentoft & Chuenpagdee, 2009).

**3.2.8 Governability assessment framework**

The first step in governability assessment, as suggested by Jentoft & Chuenpagdee (2013 b), should consist of identifying problem wickedness. As the governing follows conventional planning paradigm, usually the process is started with determination of the problem, goals and instruments to operate the problem and analysing outcomes of the solutions. However, linear solving process can not fit all the problems, but only so-called ‘tame’ problems. Thus, IGA should include evaluation of governing problems from perspective of wickedness (Jentoft & Chuenpagdee, 2013 b). For this properties of wicked problems already discussed in this chapter could be used.

The next step of governability assessment is to be done using the following framework, suggested by Jentoft and Chuenpagdee (2009) (Figure 3.4).



**Figure 3.4 – Governability assessment framework (adapted from Jentoft & Chuenpagdee, 2009).**

This framework is focuses on governing system, system to-be-governed and governing interactions, as they are sub-components of the whole governance system. Particularly, assessment is oriented on its properties: diversity, complexity, dynamics and scale, which were described above. Every property has a corresponding variable. Thus, when *diversity* is being evaluated, it is done through focusing at *components*, and answering questions “What or who are those components?” and “To what degree they differ from each other?” When dealing with *complexity*, *relationships* are in focus and questions of how do these relationships condition each other. When it comes to *dynamics*, *interactions* are assessed though investigation on how do components of the system work out together, in what way they influence each other and how elements do and whole system responds to change in one element of it. When assessing scale, attention is at boundaries: how components are defined by them and do boundaries limit interactions within the system (Jentoft & Chuenpagdee, 2009).

To perform governability assessment within described framework, governability assessment matrix could be used. In this work the assessment is based on matrix introduced by Chuenpagdee and Jentoft (2009). It is present on figure 3.5.

	Natural system	Socio-economic system	Governing system	Governing interactions
Diversity	What is the level of biodiversity: species, types of ecosystems or habitats, and the relative abundance and health?	Who are the stakeholders: demographics, organisation, interests, uses, norms and values, etc., and their quality of life?	What is the governing mode: topdown, co-management or bottom-up, and the formal and informal institutions, mechanisms and measures?	What are the existing forms of interactions: communication, participation, representation, etc.?
Complexity	How are species, habitats and ecosystems inter-linked, the system productivity, and external pressure?	How do stakeholders interact: conflicting, collaborating, communicating, integrating, specializing, complying, etc.?	How do the goals/visions of the governing institutions relate: differ, compete or co-operate?	How do the forms of interactions add up and relate: mutually supportive, consistent or incomplete?
Dynamics	What are the biological and physical changes that take place over time: long-term, short-term, seasonal; main internal and external drivers?	What is the change in the stakeholder composition, values and attitudes over time; main drivers and consequences?	Have there been any changes in the governing institutions, mechanisms and measures; main drivers and consequences?	How adaptive are the forms of interactions? Do they actually transmit information, raising demands and exercising influence?
Scale	What is the size and geographical range of the ecosystem; natural boundaries, system uniqueness and functions?	What is the size and geographical range of the social system; social boundary, ethnic and class division, mobility, uniqueness and functions?	What is the size and geographical range of institutions: local, national, regional; political boundaries, history, uniqueness and functions?	How are interactions channeled within and across scales; from national, regional to local—and vice versa?

**Figure 3.5 – Governability assessment matrix (Source: Chuenpagdee & Jentoft, 2009).**

## 4 Governability assessment of the Arctic region

In this section Arctic region is assessed by evaluating four main features of system to-be-governed, governing system and governing interactions. They are diversity, complexity, dynamics and scale, and were described in previous section. The evaluation is done with use of the matrix present on Figure 2.5.

### 4.1 Natural system to-be-governed

**Diversity:** species diversity in the region is considered to be relatively low. Three types represent ecosystems: terrestrial, freshwater and marine (AMAP, 1998).

AMAP focuses on three biogeographical zones, when considering *terrestrial arctic ecosystems*: High Arctic, Low Arctic and Subarctic, including also boreal forests to the discussion (AMAP, 1998).

*High Arctic* corresponds to geobotanical area called *polar desert*. Flora and fauna represented there by approximately 360 vascular plants and 8 terrestrial animals. Vascular plant cover of High Arctic varies between 0 and 20%, increasing to 50 – 80% at some areas. Vegetation there includes cushion plants, prostrate shrubs and rosette species of Saxifrage, Draba and Minuartia. *Low Arctic* corresponds to tundra area and is characterized by higher number of plants (more than 600 vascular plants) and animal species, comparing to High Arctic. It is also covered by plants by 80 – 100%. Typical plants are low shrubs, dwarf shrubs of heath species, sedges, grasses, cushion plants, lichens, and mosses. *Subarctic*, also known as forest tundra, is characterized by plant cover being at a level of 100%. It has many plant species, which are found in Low Arctic, and some boreal species; the region is characterized by stands of trees. *Boreal forests* are identified by such life forms as coniferous trees (AMAP, 1998).

Generally, the Arctic is home to few terrestrial animals. Soils are inhabited by wide variety of microfauna, which is represented by species of protozoa, rotifers, tardigrades, worms, copepods, ostracods, turbellarians, nematodes, enchytraeid worms, and cladocerans. There are also some species of insects, such as flies, bumblebees and other, which occur in the region during the summer (AMAP 1998). When it comes to birds, there are around 120 species which migrate to the region each summer to breed. Some species of birds are resident in the region, nevertheless, just few species stay in the Arctic throughout the year (two species

of ptarmigan, raven, snowy owl), while other species migrate to warmer places for the winter period. Mammals are represented by 50 species, 15 of which are widely distributed over the tundra during the whole year (AMAP, 1998).

Freshwater ecosystems include wetlands, lakes and rivers. Diversity of higher plant in the *wetlands* is not high, and usually dominant species are mosses and sedges. Additional vegetation types are lichens, shrubs, and trees, aquatic vegetation. Invertebrates are represented by zooplankton. Important role in the ecosystems is played by migratory birds such as species of ducks, swans, and geese. Fish do not inhabit wetlands. Generally, higher diversity of animal life is seen on wooden mire margins and wettest parts of wetlands (AMAP, 1998).

In *lakes* phytoplankton and zooplankton are present, but their presence and abundance is highly dependent on trophic level of a lake. Fish is found in lakes, which are not frozen to the bottom during winter time. So, in different areas such species as, for example, Arctic Char, Atlantic salmon, sticklebacks, brown trout could be found (AMAP, 1998).

Presence and diversity of species of primary producers and invertebrates are dependent on type of *river*. Particularly, there are differences among tundra streams, glacier rivers, spring-fed streams and rivers, and rivers fed by glaciers and direct run-off. When it comes to fish species, Arctic salmon, Arctic Char and brown trout are considered to be most common ones in the Arctic rivers (AMAP, 1998).

Arctic Ocean is considered to be one of the most complex regions of world's oceans. Marine ecosystems are unique due to the conditions in the Arctic Ocean. Nevertheless, biological communities which are present there are comparable to northern temperature oceans, being reduced in abundance and complexity. Phytoplankton, zooplankton and algae, particularly blue/green algae, are one of the most important when it comes to transfer of energy in the ocean. Apart of these organisms, it can be mentioned that there are 150 species of fish there, but most of it is present in low numbers. Most abundant and important in diets of fish, birds and mammals are Arctic cod, Atlantic cod, Greenland halibut, Capelin, Redfish, and Herring. Seal, whale, and polar bear can be mentioned as example of marine mammals. Seabirds are also present in the region, around 40 species of seabirds breed in Arctic Marine waters. It is considered, that the Arctic supports some of the largest populations of seabirds in the world. In fact, there are more seabirds in Arctic marine waters than in tropic waters (AMAP, 1998).

**Complexity:** The Arctic region is often considered to be a relatively simple system, which is characterized by easily understood interactions among species and dynamics of

environment-organism. However, some researches related to climate change show great interconnectedness in the region. Complexity of structure in the Arctic region is evident, for example, in nutrient cycle among terrestrial, freshwater, and marine components (Post et. al., 2009).

Species interactions, such as food webs, are important feature when speaking of links in the system. In terrestrial systems food webs are usually short, often formed by plants or lichens at the primary producer level, a few herbivores, and one or two main predators. Complexity of terrestrial food webs becomes higher in subarctic habitats south of the treeline. Freshwater food webs in general are more complex, having also third level predators which are not usually present in terrestrial webs. Such web can consist of two primary producers, like phytoplankton and algae, herbivores and insects, and birds, fish, zooplankton, mammals as predators of different levels. Marine food webs can contain predators of levels, which are higher than third, being even more complex comparing to freshwater systems. (AMAP, 1998).

Productivity in Arctic ecosystem is characterised as low, and it can be explained by limited nutrient availability, low light, low temperature, ice cover, and short growing seasons. However, drivers such as climate change, which brings warming of the region, is able to impact productivity of the region, as well as to increase complexity in species interactions (AMAP, 1998; Post et. al., 2009).

**Dynamics:** The Arctic region has been through numerous glaciations. The most recent of them happened approximately 20,000 years ago, making Arctic and subarctic areas covered with ice. Some areas of Arctic are still glaciated, while other areas have been deglaciated for only 3,000 years now. This caused Arctic ecosystems to be relatively young (AMAP, 1998).

Firstly, there are such internal factors which affect Arctic ecosystems and their short-term, long-term and seasonal changes, as cold temperatures, low light levels, and water availability. Due to them Arctic ecosystems are considered to be highly cyclic. So a burst of productivity typically happens during spring time; productivity is considered to be highly cyclic also, which is a result of various physiological and behavioural adaptations of animals to their environment (AMAP, 1998).

Secondly, there are also climate change and anthropogenic stressors, which also have great influence on the system and its dynamics. *Climate change* brings changes of previously mentioned internal factors due to warming, what in turn has an impact on biological dynamics in the system. Thus, for example, earlier onset of the spring, happening due to warming, causes longer growing season in aquatic and terrestrial systems. Anthropogenic stressors include increased settlement of humans, resource extraction, over-harvesting, and

contamination. Among other consequences, these stressors may cause destruction of habitat, what stays visible hundreds of years since the destruction happened (AMAP, 1998).

**Scale:** There are different definitions of the Arctic, as mentioned in first chapter. Within natural dimension, the Arctic region could be defined based on such criteria as geography, climate, vegetation, and marine boundaries (see Figure 1.1 in Chapter 1) (AMAP, 1998).

The most common definition is geographical and refers to the Arctic Circle (see definition chapter 1) (AMAP, 1998).

Climate definition is based on temperature. According to it, the Arctic is the area north of the 10°C July isotherm, what means that it is situated north of the region with mean July temperature equal to 10 °C (AMAP, 1998).

In definition, based on vegetation, treeline is used to delimit the terrestrial Arctic. In simple terms, treeline is the northern limit beyond which trees are incapable of growing (AMAP, 1998).

Marine boundaries of the Arctic are based on oceanographic characteristics. According to the latter, the region is situated along the convergence of cool, less saline surface waters from the Arctic Ocean and warmer, saltier waters from oceans to the south (AMAP, 1998).

However, the diversity, complexity and dynamics of the natural system to-be-governed have been discussed in boundaries of the region set by AMAP for the purposes of assessment, used as source in this section. These boundaries (see Figure 1.1 in Chapter 1) were determined by AMAP through compromise among different definitions, including political and administrative (AMAP, 1998).

## **4.2 Social system to-be-governed**

**Diversity:** As mentioned in Chapter 1, definition of Arctic stakeholders has become broader, including not only Arctic nations and people living in the North, but also different international players, from countries to organizations.

However, Arctic nations should be mentioned first when describing diversity of the social system-to-be governed. There are eight countries, which are considered as Arctic nations and have territory above the Arctic Circle, also known as ‘Arctic Eight’. Five of them border Arctic Ocean and have sovereign maritime territory there; they are Canada, Kingdom of Denmark (through Greenland), Norway, Russia and the U.S. These countries are usually referred as ‘the Arctic Five’. Other three countries, Sweden, Finland, and Iceland are not



coastal within Arctic region. All these countries have Arctic policies and govern the region in scopes of Arctic Council, being able to hold decision-making process.

Policies of the Arctic Eight are described more detailed in Chapter 1 (see section 1.4). In general, there are such common interests in the region among countries as improvement of knowledge, research and scientific cooperation, sustainable development of the region with focus on climate change and environmental issues, enforcement of cooperation, at both regional and in international levels, rights and livelihoods of indigenous people, economic development of the region together with natural resource extraction. However, there are also differences in the perceptions of goals as well as differences in goals within common directions of policies (see Chapter 1, section 1.4).

Indigenous people themselves are another stakeholder within the Arctic states. There are approximately half a million of indigenous people out of four million people living above the Arctic Circle. Indigenous people in the Arctic region are diverse, representing great variety of cultural and linguistic groups (Haftendorn, 2013). The Arctic region is home to these people, and their goals include preservation of their traditional habitats and livelihoods, while ensuring economic and social development of their communities, as well as recognition of their rights, including participation in political processes in the region (Haftendorn, 2013).

Previously mentioned stakeholders may be considered as key actors in the region, but it is important to mention international players in the Arctic due to globalisation processes happening around the world. Non-Arctic states and other actors such as NGOs, which are interested in the region development, argue that the Arctic is an extensive area (Bartenstein, 2015). Mostly used reasons to enter the Arctic debate by non-Arctic actors are “the Arctic affects us all” or “what happens in the Arctic does not stay in the Arctic” (Specia, 2014).

Many non-Arctic states which develop Arctic strategies, policies or white papers are permanent observers of the AC. Being a permanent observer gives to non-Arctic players benefit in form of status of Arctic partner and some participation in the Council’s work (Exner-Pirot, 2015; Knecht, 2015). Arctic policies and strategies of the AC observers tend to ensure the respect of the Arctic region sovereignty, however, they also point out international law and rights of the observers to research and shipping activities. It is also highlighted that environmental issues, particularly global warming and climate change, are important not only for Arctic states, but also for observers (Bartenstein, 2015).

Herewith, EU has its interests in the region, as some of its members are also Arctic states, and seeks status of permanent observer, whilst being promoted in Arctic strategies of members of the AC, which belong to the Union (for more detailed information see Chapter 1,

section 1.5). It determines science, technologies, funding, sustainable development of the region and economic development as directions of its future contribution to the region (Perez & Yaneva, 2016).

NATO is also among Arctic stakeholders. Four countries of the Arctic Five are members of NATO and some of them promote NATO as organisation to cooperate with while developing and governing the Arctic region. It is important to stress its military interests and concern regarding Russian military presence in the Arctic, as this may bring conflict to the region. NATO also highlights climate change and rising access to natural resources and possibility of new shipping route as issues of importance. Nevertheless, it is considered that NATO has limited possibilities within latter mentioned issues (Voronkov, 2013; Coffey & Kochis, 2016). For more detailed discussion on NATO as Arctic stakeholder see Chapter 1, section 1.5.

**Complexity:** Stakeholders in the Arctic region interact in different ways, from collaboration and cooperation to conflicts. Generally, the region is considered to be a place of stability and peaceful cooperation rather than confrontation, especially when it comes to the Arctic nations. However, discussions increasingly consider what would international actors bring to the area, as their agenda is not always clear and possibility of conflict between main Arctic stakeholders and international community might appear (Knecht, 2016). Herewith, conflicts of interests also have appeared among the Arctic states, for example, maritime borders disputes. But so far all of them are solved bilaterally, except dispute between Canada and Kingdom of Denmark over Hans Island (Byers, 2013). Nevertheless, media sees the latter as example of how these countries' governments keep sense of humour rather than really confronting the question(s) (see Business Insider, for example).

There are also predictions that the Arctic could become the location of a rush for natural resources, as ice is melting and the region has shown potential to become a new resource base. But in fact, there are few indications of a race for the Arctic resources. Moreover, sustainable development of the resource base requires stable political environment, stimulating cooperation (Haferndorn, 2013).

Herewith, it is worth to mention that complexity to relations among the Arctic States nowadays is brought by tensions between Russian Federation and Western countries after the events in Ukraine. Additionally, complexity might be increased due to relations between NATO and Russia, and their military interests in the region.

**Dynamics:** Indigenous peoples have inhabited the region from approximately 2,500 BC. However, international interest to the region appeared only in sixteenth - seventeenth

century, when the European and Russian explorers started to map some part of the Arctic. Later on, toward the end of Nineteenth Century, British and Norwegian expeditions have opened the Arctic as possible region for science and free waters. Following these discoveries Norway, Russia and the U.K. were keen to determine the boundaries of the Arctic (Emmerson, 2010). Nevertheless, these states were yet not connected to each other and there were limited lines of political communication (Jegorova, 2013).

Then the Arctic became a strategic region for the U.S. and USSR during the time of the Cold War as it was considered to be the shortest distance between these two powers. During this period the U.S. signed agreements with Iceland considering Arctic Security, while Finland and Sweden were involved in the situation as countries, which were situated between the two powers. In 1952 Nordic Council was also formed by Denmark, Finland, Iceland and Norway formed Nordic Council and Nordic Council of Ministers, to discuss different issues including defence. International cooperation among Arctic states started to take place in 1970s and since then it has never stopped, even in conditions of Cold war. In mid-1980s such terms as ‘the Age of the Arctic’ were coined. (Keskitalo, 2007; Hafterndorn, 2013).

Eight Arctic states cooperation appeared on the initiative of the Soviet Union, when its president Mikhail Gorbachev gave a speech in 1987, promoting the Arctic as ‘peace one’ and calling for international cooperation. In 1989 eight Arctic countries, including the Soviet Union, gathered to discuss cooperation for protection of the region. Two years later, AEPS appeared, and the end of the Cold war opened up the possibility of cooperation within other issues aside from security. Since that time, maritime boundaries have been negotiated among the eight Arctic states as well as new institutions and regimes founded, amongst which the AC is the most notable (Byers, 2013; Hafterndorn, 2013).

**Scale:** When it comes to social system to-be-governed within this research the definition of the Arctic as the area around the North Pole, north of the Arctic Circle, is used. It is composed of the Arctic Ocean and territories of the eight states: Canada, Denmark (through Greenland), Finland, Iceland, Norway, Russia, Sweden, and the United States. And the states define whether their Arctic areas start, corresponding to their own purposes (Koivuruova, 2009).

The situation in the region is unique, as it is composed of eight countries and every of them has indigenous people with different culture and linguistic background.

As it was also discussed in scopes of diversity, social components also include stakeholders from international level, from countries to organizations, which increases the scale within the social system of the Arctic region.

### 4.3 Governing system

**Diversity:** Governing of the Arctic region is done through three levels, national, regional and international.

At the international level, UNCLOS is the main instrument, main regulatory framework. Another body, which makes rules, is International Maritime Organisation with its conventions (SOLAS, MARPOL, OPRC, and ICRW). There are also other multilateral agreements, coping with specific issues like fishery, energy, pollution, etc.

At the regional level, the AC is a cornerstone element of governing the region. Two binding agreements were concluded under the AC (SAR, MOSPA), and the council works according to its declarations. Decision-making processes in the body are based on consensus amongst its members. Observers can take part in many activities of the council, including meetings, but have no right to participate in decision-making (for more detailed discussion of the AC work see Chapter 1, section 1.3.1). Besides, there are other inter-governmental bodies composed of one or another group of the Arctic states to address region-specific issues. BEAC, NC, the Northern Dimension of EU (ND), and CBSS are among them. According to Kirkenes Declaration (1993), BEAC aims to promote sustainable development and for solving the tasks, uses its Working Groups, cooperating also with the AC in environmental issues. NC at its meetings takes decision on issues, which are later called on Nordic governments to implement (Weidemann, 2014). CBSS is intergovernmental forum, which is in charge of coordination of all aspects of intergovernmental cooperation among countries it consists of (Source: <http://cbss.org>). ND is a policy concept, which draws attention to Northern Europe and improves cooperation, particularly with North-western Russia. It provides partnerships and cross-border and trans-regional activities such as projects, work of individual countries, the European Commission, organisations, provinces, and local players (Weidemann, 2014).

At the national level the Arctic is governed by the Arctic States, the Arctic Eight and policies and strategies these countries were mentioned previously in this section and discussed in Chapter 1. Non-Arctic states may get influence at the national level for economic reasons, as, for example, the United Kingdom, China and Netherlands bring investments to some Northern Communities and areas as well as they are important trade partners there, even though sometimes the Arctic states regulations delay needed development (Heininen et al., 2014; Dingman, 2014).

Governing mode at the national level is rather top-down, while at the regional level, in the AC, decisions are taken through negotiations and consensus among main stakeholders with possibility of observers to have influences through activities of the Council. Other organisations at the regional level create policies and their advices to governments through cooperation among its members.

**Complexity:** Firstly, it can be pointed out that overlapping of members of the Arctic governing system is present. Members of NC are also members of the AC, while BEAC and CBSS are ‘overlapping’ members of the AC partly. All these organisations together are part of ND, whose members in its turn signed UNCLOS, except the U.S.

When it comes to goals of these organisations, all the organisations support and follow UNCLOS, which define and regulate marine boundaries and rights of the countries in marine territories. The AC promotes cooperation and interactions among Arctic states, with the involvement of indigenous people. BEAC and ND have goals which are compatible with goals of the AC, particularly, they also promote cooperation and coordination, but at their concrete regional level. Herewith, as it was mentioned before, BEAC cooperates with the AC working groups in scopes of environmental issues. Unlike previously mentioned institutions, CBSS stresses identity and prosperity within the Baltic region and also issues of security and safety. NC promotes sustainable development in the region; goal of sustainability is generally met in policies and strategies of all mentioned organisations.

**Dynamics:** As the AC is considered to be main institution of the Arctic region, dynamics is described with use of it as example.

Generally, there was not much organizational difference between the AC and group of states that adopted the AEPS, from which the AC has evolved. However, the founders of the AC provided participation of Indigenous people in its work; particularly, six organisations of indigenous people have status of observers in the council. Herewith, agenda of the Senior Arctic Officials (SAO) is wider and more active comparing to the AEPS; basically SAO has a role of dynamic movers in Arctic affairs (Haftendorn, 2013).

The First non-Arctic states to become observers were Germany, the Netherlands, Poland, and the U.K. (admitted in 1998), France (admitted in 2000) and Spain (admitted in 2006). These countries got status as permanent observers as they earlier contributed to implementation of the AEPS. But until 2011 there was no specification on the admission process or on the observers’ role in the AC. In 2011 the AC, at its meeting in Nuuk, introduced a report which specified that the decision-making process is only reserved to the Arctic States, and non-Arctic states can essentially only be observers. Although they were

welcomed to support and finance the AC should they wish. The report also introduced rules for financing the body, ensuring that non-Arctic states would not be able to influence the politics of the council. This measure evolved from concerns that powerful external players can compromise the decisions already made by the AC as, for example, rejecting Arctic Treaty (Haftendorn, 2011).

2004 was an important year for the AC and world's perception of the Arctic region. The Council published report on Arctic Climate Impact Assessment (ACIA), which raised the world's awareness of global climate changes and its influence on the Arctic region. It also changed the image of the Arctic from seeing it as 'frozen desert' to a vision of it as a changing region. In the same year, the council also launched a report about climate change influencing life of indigenous and non-indigenous Arctic peoples. Since that time providing of evidence of it became one of the main tasks for the AC (Hafterndorn, 2013).

It must be mentioned that in 2000s the role of the AC was not considered as significant at political level. Thus, after raised attention to the Arctic which followed launch of ACAI, and stories of Russians putting a flag at the Pole, the Arctic Five decided to re-evaluate their interests and control, as they saw meeting within the AC lacking agenda, but having too many participants. So, the five countries had meeting in Illusiat, Greenland, in 2008, where they committed themselves to responsible management of the region and cooperation. They also stated that UNCLOS would be furthermore used to solve conflicts, as well as forums like the AC (Haftendorn, 2013).

**Scale:** As discussed before, all three levels, national, regional, and international are present when it comes to the institutions in the Arctic regions. The institutional network is denser in the Nordic Space and Northern Atlantic region (Hafterndorn, 2013). Generally, governing bodies appear fragmented and often overlap in memberships and functions, as was discussed previously.

Among the institutions, the AC is considered to be most visible. It is also a unique international body, as the institution evolved out of practical regional activities, '*originally constituting little more than an umbrella for a number of specialized working groups, while recognizing their activities and providing suggestions for their further work*' (Haftendorn, 2013).

#### **4.4 Governing interactions**

**Diversity:** All three types of governing interactions, discussed in previous chapter, are present in the Arctic region.

*Hierarchical interactions* are typical for interactions between the Arctic states and their citizens, at the national level of the governing. On the regional level, in the AC, *co-governing interactions* can be seen, in form of cooperation and collaboration. The Arctic Eight shares responsibilities and activities with each other there, and decide on issues in the region by consensus. *Self-governing interactions* might be seen in example of Greenland. So, the Kingdom of Denmark bestowed self-governance there. Greenland since then has had the right to decide on, for example, development of resource base in its territory, considering its risks and benefits.

**Complexity:** Taking into account regional levels of the Arctic governance, it can be said that interactions there are mutually supportive and consistent, as cooperation among the main actors of the region has been functioning on the base of different institutions and agreements for many years and strengthened during this time, but there are still some unsolved issues. Thus, interaction between indigenous people and the Arctic states can be considered as incomplete. Even though native people are recognized as essential part of the Arctic, which is mostly affected by the changes happening in the region, so far most of the actions, which affect the region and indigenous peoples, are often decided within negotiations done without indigenous consultation (Coppes, 2015). While bilateral communication between different Arctic states can be considered to be cooperative. Evidence of this that could be taken into account is the fact that there are no disputes of marine boundaries left to solve between the Arctic states, except one between Denmark and Canada, which is not seen by the media as critical issue.

Nevertheless, the role of indigenous peoples in work on environmental issues within working groups of the Arctic Council should be underlined. Thus, they contributed their traditional knowledge to the 2004 Arctic Climate Impact Assessment, and to awareness of the threats of persistent organic pollutants. Herewith, the indigenous peoples' organizations are considered to be the most influential among the NGOs within Arctic governance. Six indigenous peoples' organizations have status of permanent participants of the AC and they should be consulted before any decision making process. Nevertheless, they do not have a right to vote. And generally, NGOs community is concerned that negotiation processes among the Arctic Eight over binding agreements are not opened to them (Koivurova, 2013).

An interesting case of interactions is cooperation within the Arctic Five in terms of management of marine living resources. Close cooperation is seen among these countries, while other interested actors, like Iceland that possess great interest in questions of marine management and NGOs seem to be excluded. Exceptions such as the Pew Charitable Trusts,

NGO that was given a status of internal observer in the U.S. delegation during the meeting of Arctic Five in Nuuk. Herewith, Finland, the European Parliament together with different NGOs have stated their opposition to the “utilization-oriented” vision of the A5 towards living resources in the Arctic Ocean. Yet, the Arctic Five retains main power in this issue (Wegge, 2015).

Incomplete interactions are also present when it comes to communication between the Arctic states and international actors. So, despite that in their strategies all the Arctic states promote international cooperation, they seem to be very unwilling to get influence of non-Arctic states in the region, mainly giving them rights to only observe and get a status of observer of the AC. The latter process, however, might be based on personal interests of the Arctic States, as it seen in question of granting observer status to EU. So, the union was rejected to become an observer due its previous ban on seal, what negatively influenced Canadian interests (Perez & Yaneva, 2016).

**Dynamics:** Interactions amongst main Arctic stakeholders have been evolving according to the evolving interest to the Arctic region and its development. As it is seen from discussion on governing system, demand on cooperation among the states appeared in the end of 1980s the Arctic states have started to work to create interactions within the region. Starting from being based on environmental issues (the AEPS), interactions have been made more complex, including wider agenda (the AC). Organization of the council, which provided cooperation among the states, became more complex when non-Arctic states, started to indirectly participate in the governing process of the region, having status of observers of the council. New regulations therefore evolved, to provide these interactions with international actors and to safeguard powerful position of the Arctic states within the council. Nevertheless, interactions within the council are not always possessed as ones having efficient exchange of scientific information. Herewith, in the 2000s the AC was marginalised by the Arctic states, particularly, the Arctic five, as a platform for interaction. They needed wider agenda at the moment, which was not provided within the body (Hafterndorn, 2013).

There has been a wide range of NGOs, including science organizations, educational and environmental ones, which are interested in participating in the governance of the Arctic since the time of the AEPS. However, the most influential group of NGOs is one composed of indigenous peoples, and this fact was discussed previously in scopes of complexity (Koivurova, 2013).

An empirical study made by Kankaanpää and Young (2012) determines industry as a stakeholder, which has very little impact on work of the AC, and, thus, the governing process



of the region. Nevertheless, the interactions with business have been developing. So, Sweden has been actively proposing need to involve business in order to foster sustainable development in the region during its chairmanship in the AC. The country encouraged formal and informal dialogue with private sector. Later on, the AC decided at the Kiruna ministerial meeting to create a task force dedicated to the creation of a circumpolar business forum. It resulted in establishment of Arctic Economic Council in March of 2014 in order to involve industry into work of the AC (Duyck, 2015).

**Scale:** Taking an example of indigenous peoples' participation in the political processes in the region, it can be noted that interactions between sub-national, national and regional level are not always channelled well. So, at the sub-national level, interactions among indigenous peoples are well established. But when indigenous people enter higher levels, interactions among them and the Arctic states are not always complete. Therefore, looking at strategies of the countries, it can be seen that issue of consultation with its indigenous population is raised only in the U.S. strategy, even though every country speaks of indigenous peoples' rights and livelihoods. (Heininen et al. (2013) points out that often the interests of indigenous people are not addressed at the higher levels. Their ability to influence policy of the region can be questioned. Even though, the AC, for example, addresses issues of preserving livelihoods of the Arctic natives, organisations of indigenous people have no vote in decision-making process within the council.

## 5 Discussion

### 5.1 Wickedness of the problem

To determine whether governance of the Arctic is a wicked problem, four main features of wicked problems offered by Conklin and Weil (1997) are considered.

1. *There is no definitive statement of the problem:* neither there is a clear formulation on what really problem of governance of the Arctic is. Some might see it from perspective of institutions present in the region and need for more strong bodies or improvements in existing system and its functioning, as it for example discussed in Arctic strategies of some Arctic states. Others might underline climate change issues and its impact on governance processes and vice versa. Whether in general governing of the Arctic is a set of challenges, which from particular angles might also be seen as opportunities for governance development.

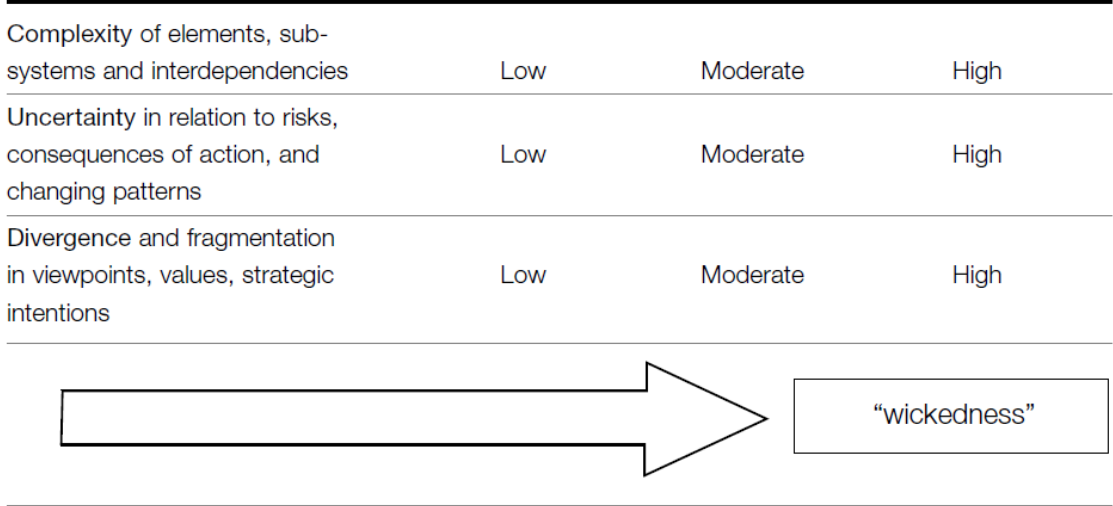
2. *Problem solving process is fundamentally social and stakeholders tend to accept problem definition corresponding to their preferred solutions:* let us mention an example of cooperation dimension in the Arctic policies of the Arctic Eight. Having a goal to improve a cooperation among the Arctic Eight, each country-member of AC points different actor to include ‘in the game’ according to its own interest and geo-political position. Thus, member of NATO would promote NATO as a needed actor in the governing process; member of EU would highlight this organization as perspective stakeholder and governing participant, and so on.

3. *To solve a problem is a complex process since constrains are constantly changing:* the world is changing constantly, so do the challenges for the governing the Arctic. Main actors change their priorities, their structure, their relations with other stakeholders, and all of this influences the process of governing the region. Let us take climate change as an example. Being a challenge itself, it might in the future bring new complications to the governance, as well as new possibilities for the development in the region, which in its turn would also demand changes in legal framework and work of governing institutions.

4. *Solution to a problem is not definitive:* there is no ‘formula’ on how to govern the Arctic successfully. This is obviously that there could be no shaped, uniform solution to the problem, which is special and has no particular definition. The region is unique place without even an agreed upon definition of what it is. Still, it is an area where many coastal states have to cooperate in order to develop their Arctic territories in sustainable way.

Governing the Arctic is a complex process with great number of stakeholders, from states to indigenous people; unique situation in the unique environment. It has all features of a wicked problem and might be classified as one. However, to what degree is it wicked?

Brian W. Head (2008) determines following features which ‘contribute’ to the wickedness of the problem: complexity, uncertainty, divergence (Figure 5.1).



**Figure 5.1 – Complexity, uncertainty and divergence influence on wickedness.**

*Complexity* is examined within elements, sub-systems and interdependencies. In our case analysis is done within governability assessment matrix, which is summarized in Table 4.1. This analysis shows generally high level of complexity of system to-be-governed, governing system and governing interactions in the Arctic region. *Uncertainty* is related to risks, consequences of action, and changing patterns. It can be considered to be high in the Arctic region. High level of uncertainty starts within natural system to-be-governed, as even though there are predictions of changes coming to the region due to the climate change, there is neither precise nor accurate scenario how ecosystem would be changed. Thus, it is not certain how different actions of stakeholders would definitely influence the natural system. There is also no particular formula on how solutions of governing system would affect social system to-be-governed. There is no answer how changing geopolitical situation would appear to change relations among main Arctic stakeholders. When evaluating *divergence and fragmentation*, one should consider viewpoints, values and strategic intentions. Keeping in mind discussions above, it can be pointed out that often stakeholders in the Arctic region have common strategies, views and values. But it can be also mentioned, that priority is given to different dimensions, according to particular stakeholders. The same goals can be understood in different ways. Herewith, some of aims of the Arctic states are opposite. As for example,

Iceland aims on no militarization in the region, while military presence is essential issues for Russian Federation and the U.S.

Wicked problems, according to Figure 5.1, are ones that have high level of complexity, uncertainty and divergence. The higher these properties, the higher ‘wickedness’ of the problem is. Thus, wickedness of governing the Arctic region can be considered to be high.

## **5.2 Governability matrix for the Arctic region**

Assessment of main features of system to-be-governing, governing system and governing interactions can be summarized in governability assessment matrix for the Arctic region, present in Table 4.1.

Natural system to-be-governed possesses comparatively low level of diversity, but high interconnectedness and dependence on both, internal and external drivers influencing its dynamics. Herewith, such external drivers as climate change are not fully predictable, but suggested to increase complexity of the system. Determination of scale of the region is dependent on criteria, whether geographical definition is not dependent on future changes in the ecosystem of the region, while boundaries of the Arctic based on other three criteria might be changed.

Social system to-be-governed is unique and composed of great number of stakeholders, including so-called ‘main Arctic stakeholders’ and non-Arctic actors. But neither growing number of players on international level, nor predictions of ‘rush’ for the natural resources have changed the status of the region being a place of cooperation. Nevertheless, different types of conflicts among the stakeholders exist and other ones are possible in the future on different levels, from national to international. Governing the Arctic can also be complicated by political tensions happening among its main stakeholders.

The governing system is composed of different institutions, which often overlap in membership and functions. Arctic Council is considered to be the most visible governing body in the region and has evolved from the Arctic Eight’s engagement in environmental issues, which started in late 1980s and turned the region to be viewed as place of change from being perceived as ‘frozen desert’ or strategic interest for USSR and the U.S. The region is governed at three levels: national, regional and international. At national level the governing mode is usually top-down, while at regional level the region is governed through cooperation between stakeholders. International actors are either observing the governing process or

influencing the region through economic activities. Rules of the AC are evolving with rising interest from non-Arctic community in a way to protect Arctic states' role as main governing powers in the region.

Governing interactions among components of the governance system are diverse, being represented by all three main types of interactions. But their completeness depends on level at which they are present. So, interactions at regional level are rather mutually supportive and consistent, with some exceptions such as interaction between indigenous people and elements of the governing system. Interactions at international level lack completeness, partly because of desire of the Arctic Eight to keep its power position in the region, what was discussed previously. Interactions among elements of the governance system are dynamic and tend to become more complex in time. Nevertheless, they are not always channelled well among the levels of the governance system.

Generally, features of four examined elements of the governance system of the region are present at its high levels, what suggests lowering of governability of the region. In its turn it contributes to the wickedness of the governing process in the Arctic.

**Table 4.1 – Governability assessment matrix for the Arctic region.**

	<b>Natural System to-be-governed</b>	<b>Social system to-be-governed</b>	<b>Governing system</b>	<b>Governing interactions</b>
<b>Diversity</b>	Relatively low diversity; 3 types of ecosystems: terrestrial, freshwater, marine. Arctic Ocean Basin is one of the most complex systems of the world ocean.	Arctic nations and people living in the North; range of non-Arctic stakeholders – from states to different types of organizations.	International level: UNCLOS, IMO, multilateral agreements; regional level: the AC, BEAC, NC; ND, CBSS; national level: governments of the Arctic Eight, possible influence from non-Arctic states through economic activities. From top-down mode at the national level to cooperation at regional and observation at international.	Hierarchical interactions between Arctic states and their citizens; co-governing interactions at the regional level; Greenland as example of self-governing interactions.

<b>Complexity</b>	Great interconnectedness; low productivity as consequence of low light, limited nutrients, low temperature, ice cover and short growing seasons; climate change has impact of productivity and increases complexity of interactions.	The region is place of stability and cooperation rather than of confrontation; possibility of ‘fight’ for natural resources and conflicts with non-Arctic actors; complications due to political tensions between the Arctic states.	Overlapping of members of the system within different organizations; sustainability and cooperation are the most common goals for governing elements in the region.	Interactions are rather mutually supportive and consistent at the regional level; interactions between indigenous people and the Arctic states are incomplete; incomplete interactions at the international level.
<b>Dynamics</b>	Ecosystem of the region is relatively young; productivity is highly cyclic; internal drivers of dynamics are cold temperatures, low light levels, water availability; external drivers: climate change and anthropogenic stressors.	From no interest to rising attention put on the region; from being inhabited by only indigenous people to creation of institutes and regimes to govern the Arctic.	From the AEPS to the AC; from Arctic region seen as ‘frozen desert’ to image of changing region; rising interest of non-Arctic players and corresponding rules of the AC.	From being based on environmental issues, interactions became more complex and are based on wider agenda; interactions within the AC are not always efficient, recent development of interactions with industry.
<b>Scale</b>	Geography, climate, vegetation, and marine boundaries as criteria to determine the Arctic.	Unique region with stakeholders of national, regional and international level.	The AC is most visible institution and unique body; governing bodies are fragmented and overlap in memberships and functions.	Interactions are not always channelled well between the levels.

## Conclusion

Climate is changing and ice in the Arctic is melting, and together with this the world's interest in the region and its development is rising. From being perceived as 'frozen desert', the Arctic region is nowadays seen as a place for transboundary cooperation and development, and governance in the region is under a spotlight (Haftendorn, 2013). From being perceived as natural system to-be-governed in not much need of governance, at the moment the region is seen as social system to-be-governed, and the issue of governing and governability of the region is becoming more important. The system to-be-governed has become more complex, as number of stakeholders and challenges in the region has increased. One of the main challenging powers in the Arctic is climate change. It affects the ecosystem of the region and brings social and economic consequences, putting questions of native people's livelihoods and sustainable development of resource base in the region to the fore. The governing system in the region faces different problems, which it has to handle. Some of them appear to be wicked, as their definitions as well as solutions are highly dependent on views and interests of ones who are looking at them. All this affects the governing of the region, which is, in fact, a wicked problem itself.

Wickedness of the governance system in the Arctic is lying in properties of its components, in its system to-be-governed, governing system and governing interactions. These properties, diversity, complexity, dynamics and scale, are influencing capacity for governance in the Arctic. This work helped to distinguish aspects, which can be considered as ones contributing to wickedness of the governing the region and thus where the entry points for governing interventions and interactions may lay.

First of all, it is vulnerability of natural system, which is to be governed and need for investigation on ecosystem changes, as well as political decisions towards prevention of dramatic warming in the region. It is also important to be aware that anthropogenic stressors might cause changes in the region, which are seen only in time and tend to stay visible for hundreds of years. Among such stressors are habitat destruction due to hydroelectric development, increased human settlement and activity, resource extraction, and over-harvesting (AMAP, 1998). Another important anthropogenic stressor is chemical and radioactive pollution. An example of latter stressors shows that human impact on the Arctic region is also brought from outside the region. As so, the Norwegian and the Northern Sea



have radioactive pollution entirely explained by activities of radiochemical plants located in Western Europe (Krapivin et. al, 2015). This brings issue of problems associated with scale of the Arctic governance within all elements of the governance system. Particularly, in this situation it is important to understand when governing, what must be done to prevent such pollutions, at what level it should be traced and who is responsible for this, and which regulations should be applied in such case, and how countries, which produce this pollution, should be involved in the solution of the problem.

Secondly, it is a high number of stakeholders in the Arctic, from Arctic nations to states and organizations from national level to international. All of them have their particular interests and visions on what problems in the Arctic are, and how they should be solved. Herewith, even though the Arctic is seen as place for cooperation rather than for conflicts and ‘rush’ for the resources, the possibility of conflicts and difference in stakeholder interests should be considered and not put out of the picture. The reasons for some of conflicts can be explained by the fact that each state has its own governing system that differs from other states’ systems, and there is difference in traditions and mechanisms used for governing interventions and interactions.

Thirdly, there are problems within the governing system. Among them is need for more regulations at international level. So, UNCLOS being main regulation base at international level does not include rules for solving disputes between countries. Another problem related to this framework is that the U.S. being one of the main governing states in the region is not a signatory to it. Herewith, there is a need for regulation in fishery and shipping which would correspond to development of the region in case melting of the ice enables these two activities in new areas in the region. Moreover, the Arctic Council (AC), the most visible body at regional level, needs to be strengthened, what is also underlined in strategies of its members. But to do so, members should come to agreement on way of its improvements. So, Haftendorn (2013) underlines that while some members were ready to make the council be more of a decision-making body than decision-shaping mechanism, there was opposition to it from others members. This situation demonstrates governing process being a wicked problem itself.

Other contributors to the wickedness of governing the Arctic are problems related to communication and interaction among elements of governance system. Interactions are highly diverse, but not always complete and effective. Therefore, a mismatch between goals of Arctic states to ensure international cooperation with actual low involvement of international actors in governance can be highlighted. There is also problem with participation of

indigenous peoples living in the Arctic and who are the first to experience the problems associated with climate change and of the governing of the region and addressing their issues. So far they have status of observer in the AC, so they can participate in activities of the council, but cannot take part in decisions making process, which is reserved for the Arctic states. Thus, Heininen et al. (2013) underlines that often interests of indigenous peoples are not addressed at the higher levels. When actions and decisions that influence the Arctic region are done, it is made without consultation with indigenous peoples (Coppes, 2015), even though they have ability to present their interests being observer of the AC. Therefore, the question is whether indigenous people have a voice within the governing process of the region.

To lower wickedness of the situations, different measures can be suggested. One of them is increasing of knowledge of the natural system in the Arctic. This should be done through scientific cooperation at different levels. Another measure to be taken is to include non-Arctic states and actors into development of the region by enhancing cooperation with them on such issues as fishery, shipping and environment. There should be also improvement of existing regulation framework in the region, as well as making the AC to be more effective body. The latter could be done through improvement of communication among working groups of the council. Including civil society organizations and stakeholders in the activity of the AC is one of possible mean to strengthen its role. Enhancement is also to be done for the role of indigenous people in governing the region. One of measures to increase indigenous peoples' involvement was suggested to be an integration of Indigenous Peoples' Secretariat (IPS) into the AC's secretariat. However, this proposal was rejected by indigenous peoples as they were concerned about losing IPS' autonomy (Haftendorn, 2013).

Changing the governance system of the Arctic region in a way that participation of the actors outside the state governments becomes expanded, would contribute to its interactivity and governability. However, it does not ensure that the governing process would contain less number of conflicts, or would avoid incompleteness of interactions. Moreover, perception of goodness of governance and its improvement is dependent on the one who is looking at it. But process of the governing is to become more transparent and democratic with such a change. To top it off, it is not just a result of decision-making process, which is important, but process itself. Changing role of the stakeholders outside the Arctic states governments from reactive to proactive can result in building trust among stakeholders, increase the legitimacy and effectiveness of governance decisions.

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