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Background paper

Overview of the Arctic

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PREFACE

The Arctic is an enormous area surrounding the North Pole, which encompasses over one sixth of the world's land mass *(see Annex 1)*. The majority of the Arctic is made up of the ocean, which is covered by an ice sheet larger than Europe, but there are also some large areas of dry land. No state owns the North Pole or the Arctic Ocean, but as the melting of the ice cap opens up new maritime routes and allows for deep-sea mining, parties from all continents have expressed interest in the area.

The interests of the Arctic Five are represented in the most pronounced fashion. The Arctic Five comprises the countries that have a maritime border with the Arctic Ocean, i.e. the United States of America, Canada, Russia, Denmark (via Greenland) and Norway. The main disagreements over border issues, sea routes and the resources of the area also occur among those five. Arctic countries also include Sweden, Finland and Iceland, whose territory extends to the Arctic region, north of the Arctic Circle. Those three consider climate, cooperation and the accommodation of the local people as vitally important issues. South Korea, China, Japan and India have also expressed interest. They have also supported many scientific expeditions to the Arctic region and are interested in the deep-sea energy deposits of the Arctic Ocean.

The states have inevitable disagreements over the rights, methods, necessities and realms of operation in the Arctic region, which is why the accessibility of the region does not involve only possibilities but also numerous dangers. In order to give an overview of both the possibilities and the problems in the Arctic region, and to interpret their background, the author has divided this analysis into seven chapters.

The first chapter, 'Climate and indigenous peoples' takes a look at climate change, its causes and possible outcomes. The chapter also analyses how climate change is related to the heightened activity in the region and how that in turn influences the lives of native people.

The following chapter discusses the two increasingly ice-free maritime routes – the Northern Sea Route and the Northwest Passage – what they are, what are the necessary prerequisites to their exploitation and what are the possible positive and negative aspects that accompany their opening up.

The chapter about oil and natural gas gives an overview of the oil and natural gas deposits in the Arctic region, the economic viability and technical feasibility of their exploitation and related dangers.

The chapter 'International law and organisations' is about laws and organisations that regulate the Arctic, their shortcomings and proposed alternatives.

The following chapter 'Border disputes and territorial claims' deals with both resolved and decades long unresolved border disputes, as well as current territorial claims and countries' reactions to them.

The sixth chapter looks at the Arctic strategies of the more important countries of the area as well as the European Union in order to give an overview of the states' vital interests, which helps us understand the countries' past and future actions in the area and observe the degree of overlap between official strategy and actual politics.

The last chapter aims to recommend possible Estonian scientific and economic interests and opportunities to have a say in Arctic developments and how the region's natural resources could prove beneficial to the country.

The sources used include legal documents and declarations pertaining to the countries' Arctic policy and other regional matters, international newspapers and magazines, scientific studies and the websites of relevant organisations. Additional background information was compiled from Internet encyclopaedias and personal interviews.

1. CLIMATE AND INDIGENOUS PEOPLES

The Arctic region is undergoing a phase of rapid climate change. While in the rest of the world the mean temperature has increased by 0.8°C during the past hundred years, it has increased approximately twice as much in the Arctic.[1] Studies indicate that Arctic Ocean ice extent has declined over 30 per cent[2] and the thickness of the ice has decreased approximately 40 per cent[3] compared to 1979 *(see Annex 2)*. The receding of the Arctic ice has been caused by two factors: firstly, the increase in greenhouse gases in the atmosphere, which results in increased air temperature; and secondly, the vicissitude of the climate system, which results in changes in wind regimes, to give an example. Although it may be possible to witness some increases in the ice extent in the short term, 'there is no escaping that we will see an Arctic with no summer sea ice this century if we continue to rapidly increase greenhouse gases in the atmosphere'[4] in the long term. The more the ice melts, the faster the Arctic warms up – ice gives way to the dark-coloured ocean that absorbs more sunlight than the light-coloured ice, thereby warming the surface of the ocean and the surrounding air. All of the above has given rise to various predictions, and the darkest scenario predicts that we could be witnessing an ice-free Arctic already in the summer of 2013. [5]

Regardless of its harsh and unpredictable climate, the Arctic is home to many large mammals, such as polar bears, walruses and seals. There are also numerous indigenous nations living in the area whose lifestyles are intertwined with nature. There are approximately 30 native nations in the Arctic region, the best known of which are the North American Inuit or the Western Eskimo and the Lapp or Sami who inhabit the European part of the Arctic. Climate change is not always construed in a negative fashion from the point of view of the native people – on the one hand, it makes it harder for them to continue their traditional way of life that is largely based upon hunting and fishing; increased interest in the mineral resources and fish stocks of the Arctic, on the other hand, brings governments' attention to the region and the locals can reap economic benefits from that. It is still more plausible that the native people who have been living thousands of years in accordance with the nature do not want giant industrial and commercial networks built upon their lands, as they feel it threatens their independence and traditional ways of life. This is corroborated by the Inuit declaration on the sovereignty of the Arctic: 'It is our right to freely determine our political status, freely pursue our economic, social, cultural and linguistic development, and freely dispose of our natural wealth and resources.'[6]

Regardless of that, it seems that the states are pragmatic and hope to push through a win-win policy to the Arctic peoples, which is reflected in the Nordic Council of Ministers' Arctic Co-operation Programme 2012–2014. One of the priorities mentioned in the document is worded as

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[1] Chapman, L. William. 'Global Security, Climate Change, and the Arctic', *Swords And Ploughshares,* 2009, Issue 17, No. 3, p. 6

[2] Leitzell, Katherine. 'Climate change or variability: What rules Arctic sea ice?', http://nsidc.org/icelights/2011/08/24/climate-change-or-variability-what-rules-arctic-sea-ice/

[3] Chapman, *op. cit.*, p. 8

[4] Leitzell, *op. cit.*

[5] Amos, Jonathan. 'Arctic summers ice-free "by 2013"', http://news.bbc.co.uk/2/hi/7139797.stm

[6] 'A Circumpolar Inuit Declaration on Sovereignty in the Arctic', *Inuit Circumpolar Council*, 2009

follows: 'The programme pays special attention to the indigenous peoples of the Arctic, to their living conditions and to their adaptation to the new conditions brought about by climate change, globalisation, potential new business opportunities and other external developments.'[7] This is a clear signal that climate change and business interests in the Arctic region are inevitable and instead of fighting the former and taking the locals' opinions into account in the case of the latter, the indigenous people will have to adapt to the new conditions. The Sami are one of those people whom the Arctic Co-operation Programme influences most. Different states have different stances towards the Sami and they have not been successful in declaring a common position so far. First attempts were made in 2005 by drafting the Nordic Sami Convention that involved representatives from Finland, Norway and Sweden in addition to members of the Sami Parliament from those three countries. The convention's objective was ''to confirm and strengthen such rights for the Sami people as to allow the Sami people to safeguard and develop their language, culture, livelihoods and way of life with the least possible interference by national borders.' [8] The representatives reconvened in 2011 and decided that they would try to reach agreement over the earlier convention over the next five years.[9] For now, the convention is not ratified and only the future will tell whether the Nordic countries – and especially Norway as the country with the strongest interests in the Arctic – will be able to fight against the region's environmental issues and satisfy both the indigenous peoples' needs and the increasing economic interests simultaneously.

Rapid climate change in the Arctic region forces countries to adopt decisions and define their priorities. According to the current official policy, the states consider their indigenous nations eminently important – the governments wish to help them maintain their cultural distinctiveness while at the same time asserting a strong interest in the Arctic mineral resources. Those two positions are incongruent as long as the indigenous people will not participate in the 'gold rush', which would mean accepting the new way of life and letting the old traditions fade away irrevocably.

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[7] 'Sustainable development in the Arctic', *The Nordic Council of Ministers' Arctic Co-operation Programme 2012–2014,* p. 2

[8] Åhrén, Mattias; Scheinin, Martin; Henriksen, John B. 'The Nordic Sami Convention: International Human Rights, Self-Determination and other Central Provisions'. *Gáldu Čála*, http://www.arcticgovernance.org/the-nordic-sami-convention-international-human-rights-self-determination-and-other-central-provisions.4644711-142902.html

[9] 'Rights of Indigenous Peoples', *Mänskliga Rättigheter,* http://www.manskligarattigheter.se/en/human-rights/what-rights-are-there/rights-of-indigenous-peoples

2. MARITIME ROUTES

Maritime states have been searching for a shorter sea route from the Atlantic Ocean to Asia ever since the Middle Ages. As a result of the current climate change, two maritime routes out of the Atlantic Ocean are opening up – the Northern Sea Route and the Northwest Passage – which, if fully open, would help save thousands of nautical miles and many days and would influence the entire trading pattern.

The Northern Sea Route (NSR) – also known as the Northeast Passage – is a shipping lane running along the Russian coast from Murmansk to the Bering Strait, the length of which is approximately 2,600 nautical miles. It was first opened in 1931 by the Soviet Union for intrastate shipping and in 1991 for foreign transit. NSR is especially advantageous to Northeast Asia and Northern Europe.[10] It would decrease the shipping distance between Rotterdam and Yokohama more than 40 per cent from the current distance (through the Suez Canal), from 11,200 nautical miles down to 6,500 *(see Annex 3)*.[11] Use of the NSR has been increasing every year – in 2010, just 10 ships were sent via that route, while in 2011 their number was already 41.[12]

The Northwest Passage (NWP) runs through Canadian Arctic Archipelago and is made up of various routes. The southernmost of them follows the Peel Sound maritime route, which has been open during the past summers and which mostly has an annual ice pack. That sea route has also some shortcomings – it is not the most direct, it goes through narrow channels and it is sometimes too shallow, which sets restrictions to larger ships. A northern maritime route from the Baffin Bay through the M'Clure Strait to the Northern Alaskan Beaufort Sea is much shorter and therefore more attractive to large ships, it is however much more prone to freezing. The NWP is potentially applicable for trade between Northeast Asia and the Northeast of North America, but may be less commercially viable than the NSR.[13] The Northwest Passage would shorten the maritime route between San Francisco to Rotterdam by almost 25 per cent compared to the current route through the Panama Canal *(see Annex 3)*.[14] According to the scientists, the Northwest Passage will be ice-free sooner than the Northern Sea Route.[15]

In addition to saving time, an ice-free passage in the Arctic helps avoid dangerous pirate attacks and decrease high taxes related to passing through the canals, however, regardless of the optimistic public opinion that often shapes the opinion of the media, potential risks involved could outweigh the expected profits. Even if the melting of the Arctic ice accelerates, annual variations can occur, which would mean that the routes could be open one year and closed the

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[10] O'Rourke, Ronald. 'Changes in the Arctic: Background and Issues for Congress', *Congressional Research Service,* 2012, p. 15

[11] Borgerson, Scott G. 'Arctic Meltdown: The Economic and Security Implications of Global Warming', *Foreign Affairs,* 2008, Issue 87, No. 2, p. 65

[12] Rodova, Nadia. 'Shaping Russia's Northern Sea Route in the Arctic', *Platts.com,* http://www.platts.com/newsfeature/2011/NSR/index

[13] O'Rourke, *op. cit.*, p. 15

[14] Borgerson, *op. cit.*, p. 65

[15] Blunden, Margaret. 'Geopolitics and the Northern Sea Route', *International Affairs,* 2012, Issue 88, No. 1, p. 115

next. Uncertainty regarding whether and when the passage would be open increases the risks, as delays in shipping result in large losses.[16]

Having icebreakers is crucial in order to keep the shipping lanes ice-free and navigable, but also to maintain a year-round presence and a demonstration of force. Different Arctic countries have very different means to that end. Russia, for example, has 20 icebreakers[17], Canada has 11[18] and the USA has only three icebreakers[19] regardless of its intentions and goals. Building those ships takes about eight to ten years and each ship costs approximately one billion dollars. [20] Although there are no real alternatives to icebreakers, it is possible to make Arctic shipping safer by building specially reinforced hulls. Such ice class ships are more expensive to build and buy; moreover, they burn much more fuel than the ships that are currently used for long distance shipping. Regardless of that, shipping in the Arctic can never be an endeavour of absolute certainty, even more so because given the speed at which the ice is receding, it is extremely hard for the states to keep up with the mapping of the new maritime routes. For example, one Canadian ship ran aground in her own maritime area, thereby casting doubts upon the adequacy of all the current navigation charts. Such cases also challenge the existing rescue capacity in the Arctic region.[21]

The opening up of the Northwest Passage and the Northern Sea Route will make shipping faster and cheaper in the future; however, given the countries' current capabilities, know-how and level of technological development and price, the new maritime routes are not an alternative to the current routes. In order to keep the new maritime routes open and ready for ship traffic special ships will be needed, which are too expensive to build even to this day and even more expensive to maintain. Should one also take into account the dangerous weather conditions, the difficulties that arise from navigating in ice-infested waters, and an inadequate vessel traffic service, deep suspicions arise regarding the safety and cost-effectiveness of the Arctic maritime routes at the present time.

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[16] O'Rourke, *op. cit.*, p. 16

[17] Wezeman, Siemon T. 'Military Capabilities in the Arctic', *SIPRI,* 2012*,* p. 10

[18] *Ibid.*, p. 5

[19] *Ibid.*, p. 13

[20] Revkin, Andrew C. 'A Push to Increase Icebreakers in the Arctic', *The New York Times,* 2008, http://www.nytimes.com/2008/08/17/world/europe/17arctic.html

[21] Cohen, Tobi. 'Canadian Rescue Capacity Questioned in Wake of Arctic Ship Grounding,' *Canada.com,* 2010, http://www.canada.com/newa/Canadian+rescue+capacity+questioned+wake+Arctic+ship+grounding/3457291/story.html

3. OIL AND NATURAL GAS

The rising prices of carbohydrates and concern for energy security turn the Arctic into an intersection point of many countries' interests. An increase in the area of ice-free waters in the summer has facilitated researching and mining the oil and natural gas deposits. Given the current state of technology, however, it is extremely dangerous and difficult to mine those natural resources, although high prices give an incentive for technological advancement and also lure large companies into risky endeavours in order to gain a share of the new resources.

An already strong interest in the Arctic mineral resources became even stronger in 2008 when the United States Geological Survey (USGS) published an appraisal which stated that '[t]he extensive Arctic continental shelves may constitute the geographically largest unexplored prospective area for petroleum remaining on Earth.'[22] According to USGS, approximately 90 billion barrels of oil, about 1,700 trillion cubic feet of natural gas and 44 billion barrels of liquid natural gas is estimated to occur in the Arctic. Such an assessment means that there is more undiscovered than discovered natural gas and oil in the Arctic. According to the current data it would amount to almost 10 per cent of world's undiscovered oil and 30 per cent of undiscovered natural gas. The majority (84 per cent) of the oil and gas deposits are estimated to occur offshore.[23] The USGS appraisal should be approached with caution, however, since it excludes economic considerations. This means that while the appraisal takes into account all the resources that are possible to chart using current technology, it does not assess the practicality of mining them with today's prices of oil and natural gas.

Commercial activity in the Arctic demands special equipment for drilling, transportation of infrastructure, running fuelling depots etc., which are suitable to use in icy conditions. New technology and especially such new technology that allows for deep water drilling and transportation of natural resources is also a prerequisite for opening, researching and exploiting new large oil and natural gas fields. Regardless of the warming trends in the Arctic, it has not been possible to start exploiting all the new oil and natural gas deposits, as current uncertain ice drift and long distances make building and developing of pipelines and port facilities dangerous and expensive until relevant infrastructure is built.[24] For example, a spokesman for Devon Energy remarked in April 2008 that the 240 billion barrels of oil discovered in the Beaufort Sea will not be ready for use for at least a decade because the company does not have the infrastructure to transport it.[25] However, it does not mean that the new deposits should remain untouched because of the difficult conditions, because the ice keeps melting and the infrastructure keeps developing, which makes access to the resources easier every year.

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[22] 'Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle', *USGS Fact Sheet 2008-3049*, 2008, p. 1 http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf

[23] *Ibid.*, p. 4

[24] O'Rourke, *op. cit.*, p. 21

[25] Miller, Hugo. 'BHP Billiton Leads Arctic Gold Hunt in Global Warming Bonanza', *Bloomberg.com*, 2008, http://www.bloomberg.com/apps/news?pid=20601081&sid=ag.kQZln.mFg&refer=australia

Drilling for oil in the Arctic Ocean is not only expensive and technologically demanding, it is also extremely dangerous. Problems related to drilling and mining are easier to overcome than those related to cleaning up oil pollution that could occur very easily, for example as a result of a leaking pipeline or oil spill from a well. Even if we take into account the fact that the majority of Arctic oil deposits are located under the continental shelf, many serious pollution issues can occur if technology evolves enough to allow for drilling. Crude oil spilled into the sea will not break down, dissolve or settle, which means that it would continue to influence the fragile Arctic environment and ecosystem. In addition to that, drilling for oil and natural gas, transporting it to the harbour, building roads and drainage systems requires large foundations to be built, which indirectly damage the ecosystem, for example by causing destruction of habitats and sea routes, and seafloor erosion.[26]

As long as energy prices are high and continuously increasing, so are commercial interests in the Arctic, which overrule every environmental concern. Driven by desire for a quick buck from the best deposits, companies cannot wait to act. The American oil company Shell, for example, who was given the right to send its oil drilling fleet to the Arctic and is therefore under close scrutiny of the government and environmental activists, nonetheless left its spill response barge behind, although the vessel is crucial in guaranteeing environmental safety, as it did not meet the Coast Guard standards. Instead of making the spill response barge compliant with the requirements and stopping dangerous drilling, Shell started negotiating to weaken the standards.[27] Moreover, there are no deep sea harbours near Shell's drilling site and the closest Coast Guard station is 900 miles away, which in case of a spill would turn cleaning it up into a time-consuming enterprise.[28] If such activities take place under close societal scrutiny, one can only imagine what will happen if attention turns elsewhere over time and the company has free rein to operate in the only pristine ocean of the world.

Another example of disregard for environmental concerns was noted by the international environmental organisation Greenpeace. Greenpeace brought attention to Russia's drilling in the Arctic, pointing out that Russia has neither adequate know-how nor the technology to counter a possible spill in the Arctic. The criticism more specifically applies to the drilling operation in the Pechora Sea. According to Greenpeace, in case of a spill, the protected areas and the nature reserves on the shore and islands would be contaminated within about 20 hours of the spill, while emergency teams would take at least three days to reach the area.[29]

Those are just a few of the many examples. The issues of environmental protection and safety raise concern in the entire region, which is why it is no wonder that many environmental

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[26] Kim, Ki-Sun. 'Natural Resources Development and Environmental Issues of the Arctic', *Dokdo Research Journal,* 2010, Issue 11, p. 87–88

[27] Beinecke, Frances. 'Problems with Shell's Arctic Drilling Give Administration a Chance to Hit Pause', *Natural Resources Defense Council Staff Blog,* 2012, http://switchboard.nrdc.org/blogs/fbeinecke/problems_with_shells_arctic_dr.html

[28] Gellerman, Bruce. 'Shell's Arctic Drilling Plan Delayed by Environmental Concerns', *Living on Earth,* 2012, http://www.pri.org/stories/science/environment/shell-oil-to-drill-in-alaska-11099.html

[29] Vasilyeva, Nataliya. 'Environmentalists Warn of Risks of Arctic Drilling', *charlotteobserver.com,* 2012, http://www.charlotteobserver.com/2012/08/14/3454482/environmentalists-warn-of-risks.html

organisations are against mining in the Arctic. Environmental organisations such as the World Wildlife Fund (WWF) and the International Union for the Conservation of Nature (IUCN) are concerned for the impact that mining for mineral resources would have upon the Arctic environment and its ecosystem. WWF encourages governments and oil companies to reassess the necessity of large-scale drilling for oil and natural gas. IUCN selected the arctic fox, dolphins, the ringed seal and many other animals living in the region among the ten creatures in danger of extinction, stressing that climate change, cargo ships and drilling for oil and natural gas harm their habitats.[30] In the light of the current events it seems that all the countries' declared intention to protect the unique nature of the Arctic is only written down in official documents and that actual environmental protection is left to the international environmental organisations, while the states wish to reap as many economic benefits from the receding ice extent as possible.

[30] Kim, Ki-Sun. *op. cit.*, p. 89

4. INTERNATIONAL NORMS AND ORGANISATIONS

An increased interest and growing activities in the Arctic region – scientific studies, mining of mineral resources, intra-Arctic shipping and fishing, new potential territorial demands and climate change – have turned the region into a new security challenge for the entire world. Countries that face new challenges usually turn to existing international organisations and prevailing norms. In rare cases, they create a new organisational structure to confront the challenges. Primarily the countries and organisations not belonging to the Arctic Five (and also some countries that belong there) claim that sufficient governance structures do not exist in the Arctic[31], which has prompted them to propose developing a new framework similar to the Antarctic Treaty. The Antarctic Treaty entered into force in 1961 and turned the region into a realm of scientific activity where the signatory parties have complete freedom of scientific investigation. The treaty prohibits military operations and declares that 'it is in the interest of all mankind that Antarctica shall continue for ever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord'.[32]

The coastal states opposed a new treaty regardless of the success of the Antarctic Treaty, reasoning that after all, the Arctic is an ocean surrounded by dry land, while Antarctica is a continent, which is why current treatment of the Arctic based on admiralty law is completely lawful. States' activities in the Arctic are regulated by the United Nations Convention on the Law of the Sea (UNCLOS).[33] This international convention provides a legal framework for solving disputed related to oceans and regulates admiralty law, limits to sovereignty, shipping, ocean mining and pollution. The convention delineates two important limits – firstly, the border of the territorial sea at 12 nautical miles, and secondly, the border of the exclusive economic zone, which gives a country the right to control the resources both in the sea and on the seafloor extending up to 200 nautical miles. In addition to that, each state ratifying the treaty has 10 years to claim additional areas to those 200 nautical miles if they can prove that the underwater part of their continental shelf extends further from the set delimitations.[34] Although UNCLOS provides an everyday framework for regulating international waters, including maritime boundary disputes and resolving territorial demands, it does not function as a forum for resolving security issues.

The Arctic Five countries do not see any problems – or do not want to see them – and are reluctant towards creating new laws and norms. In order to show the world that the coastal states of the Arctic are able to co-operate with each other and that the current international

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[31] 'European Parliament Resolution of 9th of October 2008 on Arctic Governance', *website of the European Parliament*, 2008, http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P6-TA-2008-0474

[32] 'The Antarctic Treaty (1959)', *website of British Antarctic Survey,* http://www.antarctica.ac.uk/about_antarctica/geopolitical/treaty/update_1959.php

[33] *See also* 'United Nations Convention on the Law of the Sea', *website of the UN,* http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf

[34] Wilder, Meagan P. 'Who Gets the Oil?: Arctic Energy Exploration In Uncertain Waters And the Need for Universal Ratification of the United Nations Convention on the Law of the Sea', *Houston Journal of International Law*, 2010

framework is sufficient to regulate activities in the area, the states convened on 27 May 2008 in Ilulissat, Greenland. At the summit, the states once again mentioned UNCLOS as 'an extensive international legal framework',[35] declaring that the members 'see no need to develop a new comprehensive international legal regime to govern the Arctic Ocean'.[36] At the same time, Russian Federation declared a wish to keep the discussing and governing the Arctic solely among the coastal states, warning against giving the reins to an international organisation.[37] Simply put, the coastal states declared that there are no governance issues in the Arctic that need to be solved. Reality, however, looks completely different if we take into account all the unresolved border quarrels and disputes about maritime routes.

In addition to the international admiralty law, activity in the region is regulated also by various international organisations. Give or take a few small differences, all of them deal with solving relatively similar issues while also having similar organisational problems themselves. Out of the organisations regulating the Arctic, the Arctic Council and the International Maritime Organisation will be discussed below.

The Arctic Council is the primary institution regulating the activities in the Arctic. The Council is not an international organisation with a fixed statute, it is freer and rather conceived as a forum to facilitate co-operation.[38] The Arctic Council comprises Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, the United States of America and representatives of local indigenous peoples. The Arctic Council deals primarily with environmental and climate issues, which is also reflected in the programmes and working groups of the organisation: Arctic Contaminants Action Program, Arctic Monitoring and Assessment Programme, Conservation of Arctic Flora and Fauna, Emergency Prevention, Preparedness and Response, Protection of the Arctic Marine Environment, Sustainable Development Working Group.[39] The Arctic Council has the biggest potential to solve all the region's problems as it involves all the relevant parties. Regardless of that, co-operation only happens in the field of environmental protection, as the organisation lacks legal authority to solve the largest of the current challenges – the bilateral disagreements.

The objective of the International Maritime Organisation is to guarantee the safety of shipping and to prevent sea pollution. IMO has 170 member states, including all the Arctic states.[40] The organisation has been active in many fields: improving maritime safety, regulating CO_2 emissions, drafting safety regulations for international ships and port facilities and adopting international conventions in order to ensure readiness, co-operation and response capability in

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[35] 'The Ilulissat Declaration', *Arctic Ocean Conference*, 2008, p. 1

[36] *Ibid.*, p. 2

[37] 'EU-Russia Summit to Focus on "Hard Security"', *EurActive.com,* 2009, http://www.euractiv.com/priorities/eu-russia-summit-focus-hard-secu-news-221812

[38] 'About the Arctic Council', *website of the Arctic Council*, http://www.arctic-council.org/index.php/en/about-us

[39] 'Working Groups', *website of the Arctic Council,* http://www.arctic-council.org/index.php/en/about-us/working-groups

[40] 'Introduction to IMO', *website of the International Maritime Organisation*, http://www.imo.org/About/Pages/Default.aspx

case of oil pollution.[41] After the 1989 Exxon Valdez oil spill IMO began working on requirements that would regulate shipping in polar waters and established guidelines for navigating in Arctic ice-covered waters. Although establishing those guidelines is a step forward, they are however not compulsory and often vague. Efforts to improve the new guidelines are already underway and the aim is to make the regulations mandatory in the Arctic region by 2013.[42] Time will tell whether the Arctic states will reach binding agreements that would strengthen IMO's role. Until then, however, the institution suffers from the same weakness as the Arctic Council – it gives recommendations but does not oblige to anything.

This overview of institutions and the international framework shows that those institutions have one common trait – they have not been perfectly designed to solve the problems arising in the Arctic. The UNCLOS rules cannot force anybody to reach an agreement and without a framework that involves all the relevant players and is recognised by every party (the US has not ratified UNCLOS), it is impossible to take up the Arctic challenges effectively. On the other hand, the organisations have too narrow a focus. They do deal with important environmental issues, but do not provide support for resolving long-standing disputes over maritime borders and routes *(see next chapter)*. As a result, the international community has received many signals that there are serious problems in the region, the most obvious example of which is the militarisation of the Arctic. Signs of military activity include American state of the art submarines' recent activity in the Arctic, Russia building new submarines equipped with nuclear weapons, Norway announcing plans to buy 48 F-35 Joint Strike Fighters and both Norway and Denmark equipping their navies with Arctic combat capabilities.[43] Therefore, if political co-operation in the region vanishes, the countries have also prepared for hostile score settling. Relieving tensions can only happen through shaping common positions and co-operation, for which a stronger institutional framework is needed.

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[41] 'Safe, Secure and Efficient Shipping on Clean Oceans', *website of the International Maritime Organisation*, http://www.imo.org/About/Pages/Default.aspx

[42] 'Developing a Mandatory Polar Code – Progress and Gaps', *Antarctic and Southern Ocean Coalition*, 2011, p. 6

[43] 'Arctic Military Buildup Linked to Climate Change by New Report', website of *Alaska Dispatch,* 2012, http://www.alaskadispatch.com/article/arctic-military-buildup-linked-climate-change-new-report

5. BORDER DISPUTES AND TERRITORIAL CLAIMS

Based on their rights as stipulated in UNCLOS, the countries bordering with the Arctic are conducting studies to prove that their territory extends to the continental shelf. An exception to that is the United States who has not ratified UNCLOS and therefore has no rights to further territorial claims.

In 2001, Russia was first to claim a continental shelf extension that amounted to an area approximately 1.2 billion square kilometres in size. With that move, Russia tried to grab approximately half of the Arctic for itself, but the application was rejected on the grounds of insufficient evidence.[44] In addition Russia, Canada has also claimed a right to the Lomonosov Ridge,[45] but the former has so far acted more aggressively. In 2007, Russian scientists planted a titanium Russian flag on the seabed near the Lomonosov Ridge, sending other states a message about Russia's ideas regarding sovereignty in the Arctic.[46] Then-president of Russia Dmitri Medvedev openly declared in 2008 that Russia's 'first and main task is to turn the Arctic into Russia's resource base of the 21st century'.[47] Already in March next year Russia declared creating military units to protect their interests in the Arctic.[48] Other countries bordering with the Arctic have also reacted to that and are getting ready for a possible war in the area. The US not-for-profit organisation Centre for Climate and Energy Solutions has warned that '[a]lthough the pursuit of co-operation is the stated priority, most of the Arctic states have begun to rebuild and modernise their military capabilities in the region'.[49] According to the report, the new military programmes are increasingly designed for more than just policing.[50]

Although 2010 brought an end to a very tense border dispute over the Barents Sea between Russia and Norway, which had lasted about 40 years, a multitude of unsolved issues remain, of which the five most important are as follows:

Canada and Denmark have quarrelled for almost 40 years over the small, barren and uninhabited Hans Island *(see Annex 4)*. The quarrel became especially heated in 2005 when the Canadian foreign minister visited the island and planted the Canadian national flag there. It seems, however, that the solution is almost at hand as it was proposed in 2012 to divide the island between the two countries, although it is still too early to draw final conclusions as neither

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[44] Gramling, Carolyn. 'Cold wars: Russia claims Arctic land', *Geotimes,* 2007, http://www.agiweb.org/geotimes/aug07/article.html?id=WebExtra080107.html

[45] Isachenkov, Vladimir. 'Russia, Canada Make Competing Claims to Arctic Resources', *Fox News,* 2010,

http://www.foxnews.com/world/2010/09/16/russia-canada-make-competing-claims-arctic-resources/

[46] 'Russia Plants Flag Under N Pole', *BBC News,* 2007, http://news.bbc.co.uk/2/hi/europe/6927395.stm

[47] Macalister, Terry. 'Arctic Military Rivalry Could Herald a 21st-century Cold War', *The Guardian,* 2012, http://www.guardian.co.uk/world/2012/jun/05/arctic-military-rivalry-cold-war

[48] Parfitt, Tom. 'Russia Plans Military Force to Patrol Arctic as "Cold Rush" Intensifies', *The Guardian,* 2009, http://www.guardian.co.uk/world/2009/mar/28/russia-gas-oil-arctic-nato

[49] Macalister, *op. cit.*

[50] *Ibid.*

government has still not yet approved the decision. The Hansi Island is strategically important regardless of its diminutiveness, because it is located in the middle of the Kennedy Channel, a very busy shipping corridor between Canada and Greenland. It is also thought that there could be oil and natural deposits near the island.[51]

There is a dispute between Russia and the United States over the border in the Bering Sea *(see Annex 5)*. In 1990 the Soviet Union and the USA signed a maritime boundary agreement that defined their borders in the Bering Sea, the Arctic Ocean and the North Pacific Ocean. The boundary agreement included an accord over a disputed area that was about 50,000 square kilometres in size and belonged to the United States. The Russian parliament is not in favour of enforcing that agreement upon Russian soil, citing an unfair decrease of fishing revenues caused by such a boundary. Russia has not yet ratified the agreement, but has agreed to honour it for the time being. The United States ratified the agreement in 1991, but without the consent of the Russian parliament, a final solution is yet to be found.[52]

The United States and Canada has not found an accord in the Arctic over two topics: the Beaufort Sea *(see Annex 5)* and the Northwest Passage. The claims over the Beaufort Sea go back in history, being based upon the 1825 treaty between Russia and the United Kingdom who in the 19th century owned Alaska and Canada, respectively. Russia sold Alaska to the United States in 1867 and Canada acquired the possessions of the UK after gaining independence from the latter. The two countries' notions regarding boundary issues differ to this day. While Canada interprets the 1825 treaty in such a way that the maritime boundary is an extension of the land boundary in the sea, the United States on the other hand does not consider the treaty important and wishes to draw the boundary in such a way that it would be equally far from the coast in both countries. The disputed area is 21,000 square kilometres in size and the situation is complicated by the fact that the area is rich in mineral resources. The Canadian government has assessed that the disputed area potentially contains 1.7 billion cubic metres of natural gas, which is enough to meet Canadian natural gas demands for 20 years, and one billion cubic metres of oil in addition to that. That said, a good example to others is the two countries' mutual co-operation in conducting an Arctic survey to determine the extent of their continental shelves so as to finally find a solution to the Beaufort Sea boundary dispute.[53]

The neighbours' positions on the Northwest Passage have been much more rigid. The US claims that although the Northwest Passage passes through Canada's internal waters, it should be considered an international strait and should be regulated and managed as one. The United States therefore favours free and unimpeded navigation in the area for all.[54] Canada limits the navigation of foreign ships because the Northwest Passage passes through Canadian archipelagos that have historically been Canadian internal waters and where Inuit tribes have

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[51] Wenande, Christian. 'Denmark and Canada Set to Share Island', *The Copenhagen Post,* 2012, http://cphpost.dk/news/international/denmark-and-canada-set-share-island

[52] 'The Arctic: Geopolitical Issues', *Parliamentary Information and Research Service Publication PRB 08-06E,* 2008, p. 2

[53] Griffiths, Sian. 'US-Canada Arctic Border Dispute Key to Maritime Riches', *BBC News,* 2010, http://www.bbc.co.uk/news/world-us-canada-10834006

[54] Struck, Doug. 'Dispute Over NW Passage Revived', *The Washington Post,* 2006, http://www.washingtonpost.com/wp-dyn/content/article/2006/11/05/AR2006110500286.html

been living for millennia. According to the Canadian law, navigation of foreign ships is limited in the area, because international law forbids foreign ships from navigating in other countries' internal waters. Canada also has another basis to limit foreign ships' navigation – the UNCLOS article 234, in the passing of which the country played an important part. The article authorises coastal states to develop and administer laws and regulations so that it would be possible to prevent, reduce and control marine pollution in ice-covered areas. Starting from 1986, Canada enacted a rule applying to the straits located in Canada's internal waters that foreign ships only have a right to pass through Canada's internal water if they comply with Canadian law while in the area. So far, Canada has not backed away from its demands. [55]

There are also clashes of interest in the case of the Northern Sea Route, but those are not as remarkable as in the case of the Northwest Passage. Russia's demand of sovereignty over the Northern Sea Route is in conflict with the position of the United States and the European Union who consider the maritime route international similarly to the Northwest Passage. So far, the parties have not contested Russia's *de facto* control over the Northern Sea Route, but they do dispute its military supremacy and excessive rights to regulate in the region.[56] As it is, control over the Northern Sea Route is strong – all vessels entering the NSR are required to request Russia's authorisation. In addition, Russia has the right to stop and board any vessel if it deems necessary.[57]

Arctic boundary disputes are becoming increasingly intense, as the hidden riches of the region are closer to the reach than ever before. Disputes show no signs of ending any time soon because there is no binding framework to resolve them. Quite the opposite, it seems that the situation could escalate into a kind of Cold War where the states try to defend their position or win new positions by demonstrating their supremacy to their adversaries or provoking them politically, which is exemplified by the militarisation of the region and planting flags on the seafloor and on a disputed island. The situation is also intensified by the United States' directive regarding its Arctic regional policy stressing that freedom of the seas is a top security priority of the United States and that the Northwest Passage and the Northern Sea Route must be free for international navigation.[58] This is a direct challenge to Canada first and foremost, but also to Russia whose position is diametrically different. Such conduct from the United States hinders co-operation and in no way helps reach peaceful agreements.

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[55] Kim, Ki-Sun. *op. cit.*, pp 85–86

[56] Blunden, *op. cit.*, p. 116

[57] Ragner, Claes Lykke. 'Northern Sea Route Cargo Flows and Infrastructure – Present State and Future Potential', *The Fridtjof Nansen Institute Report,* 2000, p. 6

[58] Kim, *op. cit.*, p. 86

6. ARCTIC STRATEGIES

Development of the Far North, including the Arctic, has been a top foreign policy priority of the Norwegian government since 2005. The general objective is to gain more knowledge, act more, maintain an increased presence in the North and establish a foundation for a sustainable economic and social development in the future. Norway delineates fifteen areas of priority, some of the more important ones of which are: 1) climate and environment; 2) monitoring, emergency response and maritime safety in the Arctic Ocean, corroborated by the fact that Norway is one of the strongest supporters of IMO's Polar Code; 3) sustainable development of undersea oil deposits and renewable marine resources; 4) onshore business development; 5) infrastructure; 6) sovereignty and cross-border co-operation; 7) traditional ways of life and livelihoods of indigenous peoples. Risk management and peaceful problem solving, but also sustainable and responsible behaviour are what Norway considers crucial for meeting all those goals. The country favours resolving disputes within the framework of the current United Nations Convention on the Law of the Sea (UNCLOS) and sees no need for new regulations. At the same time, Norway hints at a necessity for tighter co-operation. Co-operation with Russia has a special place in Norway's Arctic policy, but the country also wishes to promote stronger cohesion with NATO and the Arctic Council. In 2011, 1.2 billion Norwegian kroner of the state budget were allocated for the Arctic in order to promote new initiatives. The majority of the sum was allotted to science.[59]

Denmark has a special position in the Arctic, as Greenland and the Faroe Islands are autonomous countries within the Danish Realm. The objectives of the Danish strategy are based upon fostering and strengthening the development of Greenland and maintaining Denmark's position in the Arctic. Denmark's current Arctic strategy was adopted in 2011. It sets four overall goals. 1) 'A peaceful, secure and safe Arctic' includes three lesser goals: resolution of disputes within the framework of UNCLOS; enhancing maritime security, which presupposes improved infrastructure and preventive security measures (i.e. adopting global rules and standards for navigation in the Arctic); exercise sovereignty and surveillance, for which military presence in the region is considered crucial. Among the Arctic Five, Denmark is the most ardent proponent of NATO's presence in the region. 2) 'Self-sustaining growth and development' includes exploitation of mineral resources under the highest international standards; increased use of renewable energy sources in the region; sustainable use of living resources, and maintaining a leading role in the international scientific community. The economic interests included luring industries and related investments to Greenland in order to exploit the increased economic opportunities in the Arctic by ensuring a close collaboration between the state and the business community. 3) 'Development with respect for the Arctic's vulnerable climate, environment and nature' reaffirms that scientific efforts in the region must be strengthened in order to improve understanding of climate change and its consequences on the global, regional,

[59] *See also* 'The High North Visions and Strategies*', Norwegian Ministry of Foreign Affairs*, 2011

and local levels. Economic interests are also mentioned with the caveat that developing them must take into account the vulnerable environment and must be conducted with the best technologies available. 4) 'Close co-operation with our international partners' is mostly directed at enhancing global co-operation relevant to the Arctic, focusing particularly on climate change, protection of nature and the environment, maritime safety and indigenous peoples' rights. In order to successfully meet those four goals, enhanced co-operation with the Arctic Council, the Arctic Five, local councils and the European Union is to be promoted.[60]

 The objective of Iceland's Arctic policy is to secure the country's status as a coastal state of the Arctic region and to protect its interests in international decision-making based on legal, ecological, economic and geographical arguments. Iceland aims to promote and strengthen the Arctic Council as the most important consultative forum on Arctic issues, and resolving differences that relate to the Arctic on the basis of the United Nations Convention on the Law of the Sea. Among Iceland's aims are also contribution to the preservation of the unique culture and way of life of indigenous people and increasing their participation in the region, preventing human-induced climate change with all means available, ensuring that increased economic activity in the Arctic region will contribute to sustainable utilisation of resources, working against militarisation of the Arctic, and promoting international co-operation.[61] Iceland is not a member of the European Union, however, member status would provide Iceland even bigger opportunities to represent its interests in the Arctic while increasing EU's presence in the region.

 Sweden adopted its Arctic policy in 2011. The country has named three priorities in the region, which indicates that its strategy focuses on developing very particular interests. Those interests are: 1) climate and environment; 2) economic development; 3) the human dimension – people and their living conditions. The priority of climate and environment involves environmental protection, biodiversity, and climate and environmental research. In order to achieve the goal, Sweden will work to reduce emissions of greenhouse gases, increase dialogue in the international community, work for the conservation and sustainable use of biodiversity, and invest in scientific research to further our knowledge of climate, environment and the impact of climate change on humans, thereby becoming the leading nation in regards to climate and environmental research. The second priority is economic development in various fields of business and economic interests. Sweden is looking to pursue many business and economic interests in (the free trade area of) the Arctic and Barents Region. Main economic areas are mining, oil and forestry, land transport and infrastructure, maritime security and the environmental impact of shipping, sea and air rescue, ice-breaking, energy, tourism. The third priority is the people; the objective is to take care of indigenous peoples' living conditions. Attention is on geographical conditions in the Arctic that affect health, climate change and

[60] *See also* 'Kingdom of Denmark Strategy for the Arctic 2011–2020', *Ministry of Foreign Affairs*, 2011

[61] *See also* 'A Parliamentary Resolution on Iceland's Arctic Policy', *Icelandic Parliament,* 2011

hazardous substances that affect the population, the impact of economic activity on indigenous cultures and their industries, the survival of the Sámi languages, and a research programme on Sámi society. In order to achieve these goals, Sweden considers co-operation within the framework of all existing organisations and international law as vitally important.[62]

The position of Finland as an Arctic country is very similar to that of Sweden. Neither borders with the Arctic Ocean, both belong to the European Union, and the population of both countries include the Sami. Adopted in 2010, Finland's strategy for the Arctic region details the goals of the country's Arctic policy and delineates the ways to promote them. The four pillars of the Finnish policy are: 1) the environment; 2) the economy; 3) transport and infrastructure; 4) indigenous peoples. Finland aims to support sustainable development through three activities. Firstly, by drawing attention to Arctic environmental issues in international organisations, by supporting scientific research and by promoting nuclear safety, especially in the Kola Peninsula. Secondly, to strengthen Finland's role as an international expert in Arctic know-how by making better use of Finnish experience of winter shipping and Arctic technology in shipbuilding and Arctic sea transport, thereby improving the opportunities of Finnish companies to partake in large projects undertaken in the Barents Region. The third pillar involves transport and infrastructure and its objective is to improve business opportunities in the Arctic, to develop transport routes in the Barents Region and to harmonise international regulations concerning the safety of shipping and environmental protection in the Arctic. The fourth area of interests is related to indigenous peoples. On its own part, Finland tries to do everything to ensure that the concerns of indigenous peoples are also important to the rest of the Finnish society, and deems it important to improve their status in the Arctic Council and the Barents Euro-Arctic Council. International co-operation is crucial for ensuring the best results and achieving the goals. Finland also supports increasing the role of the European Union in solving regional problems, which is why it pursues admitting the European Commission into the Arctic Council as an observing member. The Finnish government has their own delegation for deal with the issues of the Arctic, which plays a central role in shaping future strategies.[63]

Russia considers the development of the Arctic extremely important mainly reasons concerning security and economic development. Russia's Arctic strategy of 2008 defines its main national interests in the Arctic and delineates guidelines for promoting them until 2020. Russia's interests in the Arctic can be divided into five categories. 1) Socio-economic interests, for developing of which Russia deems it important to expand the resource base of the Arctic zone of the Russian Federation which is capable in large part of fulfilling Russia's needs for hydrocarbon resources. That is why further studies into the continental shelf are central to Russia's interests, as it wants to prove to UNCLOS how far its continental shelf reaches, thereby gaining additional territories in the Arctic. 2) Protecting international interests. This involves protecting its national border in the Arctic, for which ensuring adequate military

[62] *See also* 'Sweden's strategy for the Arctic region', *Government Offices of Sweden*, 2011

[63] *See also* 'Finland's Strategy for the Arctic Region', *Prime Minister's Office Publications,* 2010

capacity and an active military presence in the region are deemed crucial. 3) Environmental protection. Efforts are being made to mitigate the ecological consequences to the Arctic nature caused by increased economic activity. 4) Information technology and telecommunications. Formation of a unified information space in the Arctic zone of the Russian Federation is underway. 5) International co-operation. Russia wishes to create a mutually beneficial bilateral and multilateral network of co-operation between Russia and other Arctic states on the basis of international treaties and agreements to which the Russian Federation is a signatory. In addition to these five main goals, Russia also deems important to resolve boundary disputes, to create a unified system of search and rescue, to use the North Sea passage for international maritime navigation within the jurisdiction of Russian Federation and in accordance with Russia's international agreements, to improve the quality of life of the indigenous population of the Arctic and to modernise and develop the economic conditions and infrastructure in the region to facilitate mining and transporting mineral resources.[64]

The Arctic policy of the United States of America is inching forward, but its starting points have so far been modest. Until now, its main focus has been on scientific research and environmental issues, but ever more attention is being paid to maintaining a presence and naval capacity in the region. This has brought to light various shortcomings in the infrastructure, such as a lack of icebreakers and other facilities in Alaska. The United States has declared that freedom of navigation is a basic national freedom, referring to a right to unhindered navigation in both the Northwest Passage and the Northern Sea Route. An important change for the United States is that increased interests in the Arctic have brought about a necessity to ratify UNCLOS, which they have been opposing for decades. In addition, UNCLOS has been called an extensive legal framework that regulates the region sufficiently. A treaty similar to the Antarctic treaty has therefore been deemed unnecessary. The United States' main strategic objectives in the Arctic are as follows: 1) guaranteeing the relevance of the Arctic policy in order to ensure national security and intrastate security, considering the growing interest of non-Arctic states (such as China who has brought up disputes about sovereignty in the Arctic) in the region; 2) protecting the environment and preserving biological resources; 3) sustainable economic development and management of natural resources; 4) strengthening co-operation among institutions and between states in all the Arctic organisations (but it is emphasised that the Arctic Council should remain a high-level forum devoted to issues within its current mandate and that it should not be transformed into a formal international organisation, hinting that the body should not be given the authority to resolve boundary disputes); 5) involvement of the indigenous peoples in making decisions that concern them; 6) increasing scientific research and exploration of local, regional and global environmental issues (in order to reach that goal, the United States wants to extend the field of activity of the Arctic Council to include environmental issues).[65]

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[64] *See also* 'Russia's New Arctic Strategy', *The Journal of International Security Affairs*, 2008

[65] *See also* Conley, A. Heather, Kraut, Jamie. 'US Strategic Interests in the Arctic: An Assessment of Current Challenges and New Opportunities for Cooperation', *Centre for Strategic & International Studies*, 2012

The largest sea and land territory in the Arctic after Russia belongs to Canada who therefore deems exercising sovereignty a crucial issue. The country's strategy emphasises that the Arctic is a vital ingredient of Canadian identity. Canada's indigenous peoples have a remarkable influence on its government's positions related to various questions regarding the Arctic. The nation's Arctic strategy stands on four pillars: 1) exercising Canada's sovereignty, whereas Canada's goal is to promote an Arctic where laws are abided by and sovereignty is respected in accord with international law and diplomacy; 2) promoting economic and social development, for which end the government intends to encourage new research and economic activities (in order to achieve that, Canada will improve regulatory systems across the North; invest in infrastructure, and lure investors and entrepreneurs to the region. While the region's activity is on the rise, Canada deems it necessary to emphasise the importance of sustainable development and that the lives of the Northerners be improved through economic benefits.); 3) protecting the Arctic environment, which is achieved through promoting an ecosystem-based management approach, supporting efforts to address climate change, increasing scientific research and taking a stronger stance on environmental issues; 4) improving governance of the Northern areas. The government agrees with the population of the Northern regions that they should have larger control over their economic and political status. In order to achieve that, Canada is ready to offer the inhabitants of the region an opportunity to actively participate in shaping Canadian policy on Arctic issues while continuing to support indigenous peoples' participation in the Arctic Council.[66]

The European Union has also adopted an Arctic policy. The Arctic and the European Union are tightly intertwined not only because some EU member states are geographically located close to the Arctic, but partly also because the EU is the main destination of the goods and resources manufactured in the Arctic. The EU has an important role in increasing successful co-operation in the Arctic and in helping to meet emerging challenges. It has also been the world's strongest proponent of fighting climate change. The European Union has three Arctic Council states amongst its members. The European Union wants to engage more with Arctic partners to increase its awareness of their concerns and to address common challenges in a collaborative manner.

The EU's Arctic strategy could be summarised as 'knowledge, responsibility, engagement'. 1) The component of knowledge means first and foremost increasing knowledge of the extent and speed of climate change in the Arctic and its effect on the rest of the world. The EU will therefore target its actions on knowledge: to further understanding of the Arctic by investing in Arctic research, developing Arctic monitoring from space, supporting information and observation networks, while building know-how and technical expertise. In addition to gathering and analysing the know-how, it is also important to disseminate it. The European Union will further promote the sharing of information with Arctic states and other interested parties to support policymaking. 2) The component of responsibility involves dealing with the problems of the region. The Arctic offers both challenges as well as opportunities that will significantly affect the life of European citizens in future generations. That is why the EU is also responsible for the development of the region. In order to increase the opportunities and decrease the issues, the

[66] *See also* 'Statement of Canada's Arctic Foreign Policy', *Government of Canada,* 2010

EU deems necessary to use its funding programmes as well as promoting safe and sustainable management and use of resources in the region. For instance, The EU will work with Arctic partners and the private sector to develop environmentally friendly, low-risk technologies that could be used by extractive industries, and aims to improve the safety of navigation by supporting the development of a mandatory 'Polar Code' by the IMO. The Galileo satellite system for global navigation and positioning should also increase the safety of navigation by improving search and rescue capability. 3) The component of engagement means the EU's continuing intention to contribute to the development of the region. A special emphasis is on becoming a permanent observer in the Arctic Council, which would enable the EU to intensify co-operation and make a positive contribution to the work of the Council, but also to gain a better understanding of the concerns of the Arctic partners, which would facilitate developing its own internal policies. Until the EU has no observer status in the Arctic Council, it will continue efforts to intensify bilateral dialogues with all the countries in the Arctic Five. The EU will pursue its involvement within relevant international frameworks on Arctic issues such as persistent organic pollutants, biodiversity, ecosystem-based management, marine protected areas, environmental and maritime safety standards, international navigation. The EU emphasises that this should be based on existing international law, international conventions and agreements.[67] The EU will look at appropriate ways of ensuring that the representatives of Arctic indigenous peoples are informed and consulted on the EU policies that affect them.

[67] *See also* 'Developing a European Union Policy towards the Arctic Region: progress since 2008 and next steps', *European Commission*, 2012

7. ESTONIA AND THE ARCTIC

Because of its small size and limited resources, Estonia must have very firm priorities regarding its interests and how it represents them in any given area, time and place. Estonia is not a member of the Arctic Five, as it has no littoral boundary with the Arctic. Moreover, Estonia is not a direct member of any Arctic organisation. That said, the region is geographically quite close to Estonia and matters greatly to the countries with whom Estonia co-operates on a daily basis. If we add experiences of polar exploration and the fact that there are three EU member states in the Arctic Council, then the Arctic suddenly no longer seems as remote and disconnected a region to Estonia.

This study discusses Estonia's possible interests in the Arctic within the framework of the Arctic policy of the European Union. It does so by charting common interests of the EU and Estonia to which Estonia could contribute. Both scientific and economic interests will be studied. In order to promote the latter, contributing to high-tech industries and to the space industry in particular is seen as a viable option.

7.1 Scientific interests

Estonia has long since been involved in polar research. Current scientific interests are a continuation of earlier expertise and experience, however, they have been adapted for solving problems arising on the international arena, and applying within the field of possible collaboration. Polar research is planned in five directions that have been mentioned by the scientists in the Estonian Polar Research Programme for 2012–2014.[68]

Those five areas are: 1) Paleoenvironment of glaciers, polar icecaps, terrestrial and limnic sediments; 2) Sea ice physics; 3) Studies of atmosphere physics in Polar Regions; 4) Biological diversity and resilience of marine, terrestrial and limnic biological systems in the context of global warming; 5) Historical and educational aspects of polar region research and social research of polar communities. All these areas are relatively extensive and include various projects that are also in line with the general objectives of the Arctic programme of the EU. The following is a selective introduction to two of those projects, their potential and their shortcomings.

1. One of the most known Polar Science directions in Estonia is ice core study, which provides information millions years old, which is why it is perhaps the single most powerful means of gathering information about past climate change and understanding it in contemporary context. This is an area where Estonia has scientific capability on an international level and close ties with other countries, the most notable of which is the fifteen year long co-operation with the Norwegian Polar Research Institute in Svalbard. However, Estonian scientists are completely dependent on their partners' technological capacity (such as drilling technology) and equipment. Considering the field's potential and importance in assessing climate change, Estonia should consider establishing independent research capacity.

[68] Tallinn University of Technology, Institute of Geology, 'Proposal for Estonian polar research programme for 2014–2020', *Estonian Research Council,* 2012

2. Fluctuating Arctic climate is accompanied by unforeseeable ice drifts which make navigation in the Arctic an extremely dangerous and unpredictable endeavour. In order to meet the risks, it is crucial to learn how climate change affects the structure, properties and thermodynamics of ice. Estonian scientists' projects 'Impact of changing ice conditions on winter navigation in Polar Regions' and 'Sea ice dynamics in conditions of rising air temperature' are dedicated to studying it.

   Studying the properties of ice helps make the Arctic a safer place, as it allows for making special provisions for adapting to the new conditions. Safe navigation is one of the most top priorities for both the European Union and the Arctic Five. Estonia should pay attention to that area of research for at least two reasons. Firstly, researching it would not need additional large investments, as the Marine Systems Institute of the Tallinn University of Technology already possesses all the necessary equipment to conduct independent research in the Arctic (and also the Antarctic). Secondly, those studies could prove to be economically rewarding, as they deal with the properties and dynamics of ice, which is crucial information to shipbuilding and materials technology companies. Depending on the results, there could be potential in the field of study to design such hulls (or materials) that would withstand better to ice drift in the Arctic and make navigation in the area safer. The fact that materials technology is one of the top priority areas of development in the 'Organisation Development Programme 2012–2015' compiled by the Ministry of Economic Affairs and Communication[69] adds extra weight to the idea.

The Estonian polar research programme and its scientific directions indicate Estonia's scientific ability to partake in Arctic politics and international co-operation, as they are compatible with the goals of the EU's Arctic policy. In order to achieve current goals, the country must focus on increasing international co-operation, as well as establishing independent research capability.

If investments into science were increased, it would be possible to conduct ever more extensive research, which would benefit both Estonia and the international society. Information gleaned from the studies would help understand the complex nature of climate change as well as its causes, and to predict future trends. This would ensure better know-how and would help develop further policies, for example in basic fields such as energetics, transport and environmental protection. The scientists' independent and more resource intensive research would help improve competency, which would in turn be economically very rewarding, since information obtained from the research would help develop and manufacture necessary equipment – for example for navigation – on the location.

7.2 Estonia's space strategy – part of Estonia's Arctic policy

As activity in the Arctic is rising, there is a growing need for more precise, faster and more reliable information. A large part of necessary information depends directly on satellites, including the quality of communication, navigation, and survey facilities.[70] Since Estonia wishes

[69] 'Organisation Development Programme 2012–2015', *Ministry of Economic Affairs and Communication,* 2011, p. 22

[70] Earth survey satellites also provide people with important scientific information about climate change, such as the thickness, extent, and drift of sea ice. Satellites are also important tools for

to join the European Space Agency (ESA), it has become important to have a space policy. As satellites are closely connected to both the Arctic and outer space, it would be wise to combine interests in both fields, considering the financial means and scientific capacity of a small country. In such a way, Estonia could partly further its space policy through its Arctic policy and vice versa. Moreover, enhancing the use of satellites and aggregating existing sources of information is part of European Union's Arctic strategy (in co-operation with ESA), which ensures the projects better financing and co-operation opportunities with other member states.

assessing correlations between human activity and climate change, plus they help in weather forecast and conducting rescue operations.

7.2.1 Common Arctic interests of the EU and the European Space Agency

The following is a short overview of the means the EU and the ESA use to further their knowledge of the area and to solve problems with communication, navigation and observation facilities.[71] Following goals have been set: 1) contributing to the Global Monitoring for Environment and Security (GMES) Programme, the purpose of which is to observe land, atmospheric and oceanographic parameters; 2) developing the Galileo programme, the purpose of which is to provide a very precise and robust global positioning service under civilian control (with Galileo's launch, it is hoped to eliminate current problems with satellite navigation); 3) creation of a platform by 2020 with the aim to pool data on the state of the seas in and around Europe and high-resolution sea-bed mapping, which could provide assistance in establishing safe transport routes in Arctic waters; 4) creation of the Shared Environmental Information System initiative, the purpose of which is to gather the data about the Arctic collected by individual countries into a single system to which all the interested parties could access over the Internet.

At the moment, Estonia contributes to the GMES through small working groups first and foremost, however, it does not contribute at all to the latter two topics and in case of Galileo[72] it is just waiting for its launch to start using it for its own purposes. It is crucial to participate in shaping related programmes in order to ensure Estonian companies' future opportunities to participate in procurement related programmes as an equal partner. Therefore, a passive strategy does not encourage harnessing the full economic potential of the companies and the full scientific potential of the scientists, nor does it bring about readiness to become a full member of the European Space Agency.

The following does not delve into the Estonian scientists' capability to participate in the EU and ESA programmes,[73] but studies the entrepreneurs' potential to contribute to the space industry as a whole and also to specific fields in particular.

7.2.2 Estonian companies and the space industry

The enterprises' overall capability to participate in the space industry was confirmed in 2008 when ESA conducted a technology audit in order to inquire into companies' and institutions' technological and organisational capabilities to fulfil space industry procurements. 'Studies showed that Estonian companies do have potential to develop the technologies and services for the space industry, however, it is still necessary to keep improving the entrepreneurs' awareness of new ways to improve their products and services, open up new export markets for

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[71] 'Developing a European Union Policy towards the Arctic Region: progress since 2008 and next steps, European Commission', 2012, p. 7

[72] 'Estonia monitors the development of the EU Galileo project, creating readiness for implementation of the new opportunities created by the Galileo system immediately after its implementation, first and foremost in the public sector.' (Source: 'Strategy for Estonian Space Affairs 2011–2013', 2011, p. 13)

[73] According to the Strategy for Estonian Space Affairs, Estonia has a high level of proficiency and long tradition in space science in the fields of astrophysics, cosmology, optical sensing, atmosphere physics, materials science and technology. Taking into account the scientists' various initiatives and projects such as the ESTcube, EstSpace, and regional first prize at the European satellite navigation competition Galileo Masters, one can conclude that the scientists have a potential to participate in more numerous space projects.

Estonian entrepreneurs, improve the quality of public services through innovative solutions, and improve public awareness of new technologies and their applications.'[74] Such a result indicates how important it is to participate in various EU projects, as those create an opportunity to gain access to new sizable procurements of and partnership with the space industry, which compensates for the small size of the Estonian market. After the audit, Estonian entrepreneurs participated in 12 space technology development projects, plans to apply for additional projects are underway.

The technology audit mapped 18 Estonian companies that could be able to participate in three or more areas of the space industry.[75] The following lists a few companies that would be suitable to co-operate with the EU and ESA in order to achieve the goals set in the Arctic.

- The company Regio,[76] active in the fields of mapping and geographical information systems, could contribute to EU's the third objective, i.e. help in developing the region's maps.
- The company Cybernetica,[77] active in the fields of navigation and observation system, could participate in both Galileo and Global Monitoring for Environment and Security (GMES) programmes. They could provide navigation solutions in the case Galileo and share experiences regarding observation systems within the framework of GMES.
- The Company Vertex Estonia[78] has possibly the most international reach of the three, having provided satellite antennas and industrial products to 35 countries. In addition to contributing to EU's Arctic policy, the company could also participate in the activities of the NATO Research and Technology Organisation (RTO). RTO's research interests in the Arctic prescribe the use of sensors and electronics, especially radars. As difficult weather conditions influence electronic signals and machinery used in the region, Vertex's experience in signal processing and antenna technology could be beneficial to RTO.

Those are just a few examples and there are other companies in the list of enterprises suitable for the space industry, which have a wide enough reach and whose experiences could be used to contribute to EU's Arctic policy and to promote Estonian interests. For example, dozens of Estonian IT companies are capable of developing information systems, navigation charts and environmental information systems (EU's objectives, points three and four) that would interest the European Union.

It is clear that it all boils down to the efforts made by the state – is it promoting such international policies that help gain access to international scientific projects and markets? The country's image determines the credibility of the entrepreneurs and scientists, who in turn shape the country's image by partaking in international programmes. That is why trilateral co-operation

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[74] Strategy for Estonian Space Affairs, *website of the Ministry of Economic Affairs and Communication*, http://www.mkm.ee/kosmos/

[75] *See Annex* 'Towards an Estonian space policy and strategy', *Space business, R&D, institutions & innovation in Estonia,* 2008, p. 75

[76] *See Annex* http://www.regio.ee/?setlang=eng

[77] *See Annex* http://www.cyber.ee/home/index.html

[78] *See Annex* http://www.vertexestonia.eu/eng/home

between scientists, entrepreneurs, and the state is necessary. The fruits of such co-operation would be beneficial to all parties, while the state's role in promoting co-operation must not be underestimated.

7.2.3 Benefits of combining the Arctic policy and space strategy

The following is a brief overview of why it would benefit Estonia to contribute more to satellites and therefore to space exploration and the Arctic in general. 1) It proves the country's readiness to become a full member of ESA. 2) It increases international co-operation with other countries.[79] 3) It increases Estonia's space readiness and influence in the Arctic. 4) It proves the country's competence internationally, which increases the influx of technology-intensive foreign investments. 5) As various academic groups and international consultation firms (RAND, McKinsey, PWC etc.) rank space industry among the top ten fastest growing industries,[80] it means that developing the field would increase Estonia's competitiveness on the international market and improve export capabilities. 6) It would inspire young people to study natural sciences and technology, which, being an interdisciplinary field, would improve the synchrony of science and entrepreneurship. 7) In addition to everything else it ensures better utilisation of common investments, as Estonia already contributes to developing space infrastructure through its EU payments.

These are the reasons why interests in both fields should be combined and Estonia's capability in (space) technology should be taken to the next level.

7.3 Estonia and natural gas in the Arctic

The large mineral deposits of the Arctic and particularly its natural gas could be of interest to Estonia, as it would help put an end to the region's (Finland, Estonia, Latvia, and Lithuania) current dependence on Russian natural gas. Estonia's gas network has historically been connected to the Russian gas network, as it has not been possible to neither manufacture nor store natural gas on Estonian soil. Until now, regulating and supplying the Estonian gas system has been under control of its eastern neighbour's gas giant Gazprom. This means that in addition to the technical connectedness, Estonian gas suppliers also depend on Gazprom's supplies, because Gazprom has been granted an exclusive right to natural gas export in the Russian Federation.

However, the current situation is not sustainable, as it is dangerous considering both security and economic concerns. This is corroborated by the Ukrainian case in which political motives urged Gazprom to cut off the country's gas supplies when gas was most needed. Estonia should not let its foreign policy be dictated by gas supplies and prices. That is why the country should follow EU and various experts' advice and diversify its gas suppliers, the first prerequisite of which is separating the network from the supplier. Powerful steps in that direction have already been taken, as it was decided in January 2012 that the network provider AS Eesti

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[79] Jaakko Blomberg and Gunnar Okk's 2008 study 'Opportunities for Cooperation between Estonia and Finland' notes that space technology is a promising field where Estonia and Finland could co-operate both in an economic and scientific capacity. (Source: 'Opportunities for Cooperation between Estonia and Finland', *Estonian Ministry of Foreign Affairs*, 2008, p. 17)

[80] *See Annex* 'Towards an Estonian space policy and strategy', *Space business, R&D, institutions & innovation in Estonia,* 2008, p. 6

Gaas must sell its gas transmission network by 2015 or pay civil fine.[81] Such steps are a prerequisite to importing gas, fostering competition and dismantling the monopoly, which in long term guarantees safety and a smaller price for the consumer.

There are many ways to diversify competition within the field of natural gas. Discussions are underway to build liquefied natural gas (LNG) terminals for both regional and local use and in connection to that also a Finland-Estonia pipeline (the Balticconnector), which would encourage natural gas supplies in the area and increase regional interest in Estonian consumers. Regardless of the drawn out negotiation, the Finnish government adopted a gas strategy on 13 June 2012, which stipulates that together with Estonia, Finland should aim to have the project for building an LNG terminal on the coast of the Gulf of Finland, and the Balticconnector gas line between Finland and Estonia.[82]

While the European Commission's plan foresees one large LNG terminal in the Baltic Sea region, the building of which it is also ready to support, the Baltic states have not been able to decide in which country it should be built. All three countries want it built on their territory and Lithuania is further ahead with the implementation of its plans. The situation is muddled by the fact that the plan to build the Estonian regional terminal rests on the assumption that gas is exported to Finland through the pipeline, however, Finland's intentions seem to be quite the opposite, i.e. building the terminal in Finland and exporting gas to the Baltic states.

As current affairs regarding the building of the LNG terminal are a bit messy, a third way is theoretically possible – building a gas pipeline from Norway to the eastern part of the Baltic Sea. Although consumption of natural gas has diminished in Estonia, Latvia, Lithuania and Finland, the whole region could constitute a large enough consumer base to incite interest to build a gas pipeline; for instance, the Norwegian energy giant could be interested in it. The pipeline could run from Norway to either Estonia or Finland. Considering that the two states have in principle agreed to build the Balticconnector pipeline, common gas supply to the Baltic states and Finland could be ensured regardless of the location of the final delivery station.

In order for any of these ideas to come to fruition, the region's desire to diversify its energy supply sources and increase consumption should be advertised, especially as natural gas is becoming an ever more attractive energy source and the market for natural gas is becoming more diverse and liquid because of an increase in the exploitation of conventional natural gas reserves on the one hand and because of broadening opportunities to transport liquefied natural gas and tougher climate policies and regulations on nuclear energy on the other. Estonia and other countries mentioned have lots of potential to consume larger amounts of gas. Taking Estonia as an example, the expert organisation in the energy sector Pöyry Management Consulting has compiled a list of recommendations that would be beneficial in boosting the natural gas market and for the environment: a drastic reduction of sulphur emissions in marine transport after 2015 – using natural gas as ship fuel; a similar direction (use of natural gas) for reduced emissions in land transport; when oil shale oil production will be discontinued;

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[81] Kahu, Oliver. 'Eesti Gaas peab torud maha müüma või sunniraha maksma', *ERR*, 2012, http://uudised.err.ee/index.php?06252810

[82] Leppiman, Ando. 'Gaasi ülekandevõrgu eraldamine kannab esimesi vilju', *Delfi,* 2012, http://majandus.delfi.ee/news/arvamus/gaasi-ulekandevorgu-eraldamine-kannab-esimesi-vilju.d?id=64542172

replacement of oil shale oil in heating management after 2017 when manufacturing of oil shale oil ceases; replacement of oil shale with natural gas in the power market in the 2020s when the oil shale plants will be decommissioned.[83] These recommendations should be read ever more carefully as EU's climate policies become more and more rigorous, because the EU is committed to reducing its emissions by 80–95 per cent by 2050.[84] This means that Estonia must start thinking of ways to reduce emissions. One of the possibilities is certainly following the recommendations of Pöyry Management Consulting.

Using natural gas as a primary fuel is becoming a central tenet of many nations' energy policies. The Arctic natural gas gives the Baltic states and Finland an opportunity to lessen their dependence on Russia, but utilisation of new energy sources depends on increased consumption, as new resources are difficult to access and the supplier of the gas must therefore have a guarantee that the region will also be interested in the gas in the future. Estonia must analyse the opportunities present in natural gas from the viewpoints of the competitiveness of its economy, meeting the targets of the climate policies, and also energy security, and act swiftly and decisively.

[83] Pöyry Management Consulting. 'Liberalisation of the Estonian gas market', *Elering*, 2011, p. A-5

[84] 'Developing a European Union Policy towards the Arctic Region', *op. cit.*, p. 3

CONCLUSION

Climate change in the Arctic has brought attention to dangerous tendencies to the indigenous peoples, fauna, flora, the Arctic states, and the world in general. Changes in the Arctic environment could be dangerous depending on how the new opportunities of the region will be taken into use. If we are reasonable about it, those changes need not be dangerous. In order to achieve that, the priorities and values of the nations must be reasonable as well. If however the nations prioritise quick riches and only see opportunities in the Arctic while overlooking its inherent dangers, then local indigenous peoples and the Arctic environment will sadly suffer. In order to be successful in the region, nations must co-operate, reach common positions, and take indigenous nations and environmental issues into consideration.

Current co-operation mostly involves environmental activities in order to maintain balance of nature in the region and minimise the impact of human activity. However, the Arctic is part of the world in general, which is why local efforts that are often accompanied by pragmatism and duplicity currently do not give desired results. Greenhouse gas emissions must be reduced globally in order to prevent rise in global temperature and the melting of the Arctic ice cap, which results in unbearable living conditions for the indigenous peoples, animals and plants. In order to ensure successful co-operation in current areas and also in the future, we must first adopt more stringent climate and environmental measures, and secondly expand the areas of co-operation.

For instance, in order to make environmental policy more stringent we should pay more serious attention to IMO's guidelines, especially their polar regulations that define navigation rights and the requirements applicable to ships navigating in the Arctic. This would reduce probability of marine accidents and therefore also pollution accidents in the region. In order to lessen the environmental risks particular attention must be paid to mining companies. They should be monitored so that the desire to make a fortune would not make them forget environmental concerns and lose the capability to operate in the region. In order to extract mineral resources in a safe, environmentally friendly and economically rewarding way new technological solutions are needed. Considering our current know-how, the prices of mineral resources and technology, and related risks, mining is neither economical nor safe. It only advertises the countries' real interests in the Arctic.

Operating in the area and making (or avoiding to make) decisions that influence it must respect local peoples and consider the factors that influence them. Intense mining for mineral resources in the Arctic essentially means ignoring local peoples, although almost all the countries have included protection of indigenous peoples in their Arctic strategies as a top priority. Countries should not compromise the values they stand for, they should follow them always and without exception. As it stands, the situation is diametrically different – the states have ignored indigenous peoples' cries for help, which has prompted them to turn to international organisations for help.

Co-operation in resolving boundary disputes and adopting norms regulating the Arctic is also important. Disputes cannot be resolved until all the parties have not ratified the United Nations Convention on the Law of the Sea (UNCLOS) or reached a common position regarding its legitimacy and applicability to all the necessary areas. As no regional organisation or UNCLOS has a binding mechanism for solving boundary issues, amending UNCLOS should be

considered or at least giving such a function to a regional organisation, for instance the Arctic Council. Current decades old practice shows that bilateral negotiations generate no results (with a few exceptions) and that there are still a multitude of unresolved disputes. If anything, there are indications that with the increasing importance of the region all the quarrels intensify, as parties have resorted to power demonstrations and provocative statements.

Although the motivation behind the euphoria and quarrels over the Arctic is quite clearly the discovery of sizable deposits of natural gas and oil in the region (as well as the fact that both the Northern Sea Route and the Northwest Passage are becoming ever more navigable), hopefully it also motivates the relevant parties to resolve their disputes as it has happened in the case of Norway and Russia, since without agreements, no country will gain fully from the region's riches. Resolving disputes is also the basis for extending co-operation to all the other areas and stopping the increasing militarisation of the region. That is why it is crucial to reach an agreement in order to find solutions in the future, which are beneficial to the region.

The opportunities of the Arctic have become its dangers. In order to turn the situation around, it is necessary to start on a new path until it is too late. Disputes must be resolved honouring all the countries' sovereignty and international law. Promises stated in the Arctic strategies to fight climate and environmental issues and respect indigenous peoples must be elevated to top priority overarching all the other objectives. More countries must be included in the decision making process of and contribution to the Arctic, because the region indirectly influences the entire world and vice versa. The best solution for slowing down the processes currently taking place in the Arctic is therefore in peaceful co-operation and smaller nations such as Estonia have their own role to play in that.

ANNEXES

Annex 1. The Arctic

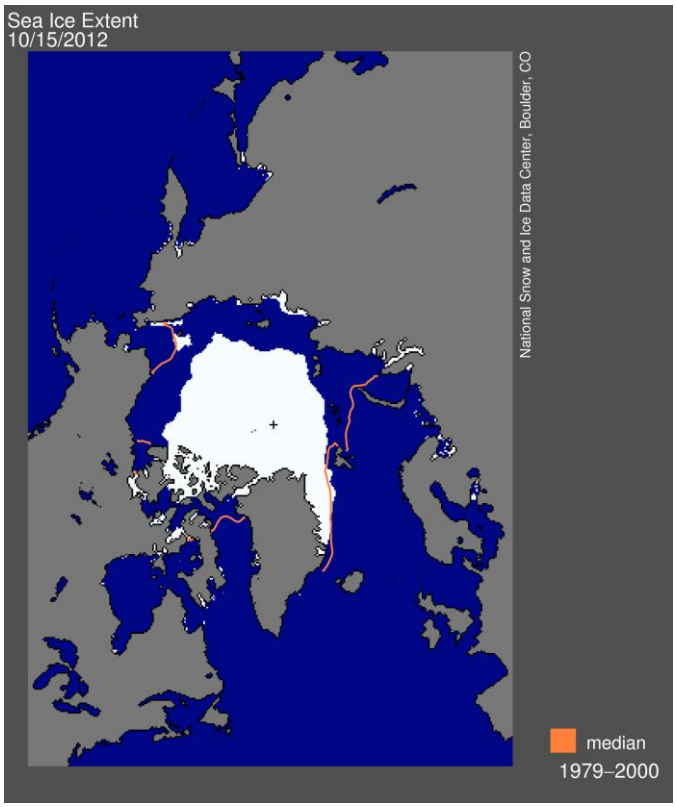
Explanation: The grey line denotes the Arctic region and the black X marks the geographic North Pole

Source: GRID-Arendal

Annex 2. Ice extent in 1979 and 2012

Explanation: Orange lines denote ice extent in 1979; area covered with ice in 2012 is white. The black X marks the geographic North Pole.

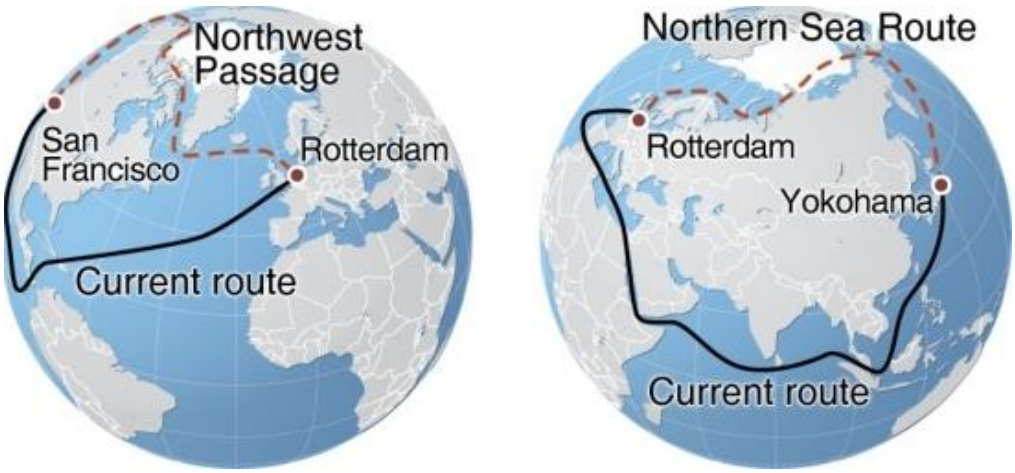
Source: National Snow and Ice Data Center (NSIDC)



Annex 3. The Northwest Passage and the Northern Sea Route

Explanation: Solid lines denote current maritime routes, dotted lines denote new ones

Source: GRID-Arendal



Annex 4. Hans Island disputed by Canada and Denmark

Source: Canadian Geographic Enterprise

Annex 5. Maritime boundary of USA and Russia in the Bering Sea according to the 1990 border treaty; Border dispute between Canada and USA

Explanation: Dark grey sector on the Canada-US maritime boundary denotes the disputed area

Source: Jardejallen Wordpress (new name: *Arctic Economics*)

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