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**“The thawing of the Arctic  
and the region’s security environment”**

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## ***DEDICATION***

To my family that was very supportive through this year. Without their help and encouragement, nothing would be the same for me. They always give me the strength to move on, to handle difficulties.

My friends are an integral part for my completion of this paper and master too. They were always there for me and always by my side either for the good times or for the bad ones.

Last but not least, this paper is deeply dedicated to my grandfather who won't have the chance and the joy to watch me graduate from this program.

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## **1.Introduction**

This paper aims to provide the basic and necessary information about the current situation in the Arctic.

Due to climate change, the Arctic region melts faster than any other part of the world. As permafrost melts and surface of the oceans absorb more sunlight, this will inevitably accelerate the phenomenon of greenhouse gas emissions.

Furthermore, because of the ice melting, new energy shipping routes are opening and the area attracts the attention of non-Arctic states countries as well. In 2007, for the first time in history, the Northwest Passage became totally ice-free. The Northern Sea Route is a very crucial passage as it connects Asia and Europe.

This traffic from shipping, either tanker or cruise ships, increases the problem and constitutes environmental concerns. Oil and gas operations are threatened as well. As permafrost melts, the infrastructure will be in danger, especially the pipelines and platforms.

As ice melts, new resource discoveries of undiscovered oil and gas are also taking place. There is a huge amount of minerals but also rare-earths and this is one of the main reasons why superpowers like USA and Russia want to gain further control over this area. The Arctic becomes progressively a place of a great global interest.

As Arctic turns into a crucial area for the global environment, discussions are made over the Arctic Governance, which has a quite complex meaning. The area is, most of its part, dominated by the domestic law of each Arctic State, by bilateral and international agreements and by the law of the sea. Under this paper, we will examine if those changes in the Arctic will affect the Arctic governance and if the states are ready to find solutions over the above-mentioned challenges in the area.

The Arctic security environment and sovereignty are repeatedly changing as today the region is regarded to one of the major component in the geopolitical map. The hard security dynamics in the Arctic are being affected by two elements. The first one

is the military presence of Russia in the region and the development of conventional missiles and nuclear weapons too. The other factor is the impact of the opening of the North Atlantic Sea line of communication, as in an extreme scenario of a conflict between Russia and NATO, the SLOC could perform a colossal role for the brace of forces from North America to Europe.

The changing environment of the Arctic generates a chain of threats and challenges. Some of those threats are disputes about the legal state of passages, bilateral territorial disputes, military expansion and environmental security issues.

Under this paper, it will be examined the changing conditions in the Arctic and the possible challenges that may arise. It will also be attempted to figure if those threats have the power to destabilize the Arctic and its historical peace.

## 2. The changing Arctic

### 2.1. *The thawing of the Arctic*

At the heart of the impacts of global warming and globalization on the Arctic is, undoubtedly, high temperature at an accelerated rate. Global surface temperature has increased approximately 0.6°C during the last 50 years. It is known that the effects of climate change are hitting the Arctic stronger and are more intense than any other region of the world. The warming rate is approximately double of the global average.

In recent decades the temperature in the surface in the Arctic have increased about 2°C and will increase by two to five more degrees during this century.<sup>1</sup> According to some NASA studies, the amount of Arctic sea ice is decreasing at a rate of particular percent per decade. Another component that contributes to warming of the Arctic Ocean is the increase in discharge rates of rivers draining from Eurasia.

The ice is, at the same time, both receding and thinning and especially summer month sea-ice had decreased by 15-20% over the past three decades. In 2007, summer ice coverage was approximately half of what was in 1910, according to data from the University of Illinois.<sup>2</sup> As stated by scientists from the Permafrost Carbon Network, who studied more than 100 Arctic fields, the permafrost unchained a mean of 1662 trigrams of carbon each winter during the period 2003-2017, which is double in comparison with other past evaluations.<sup>3</sup>

According to Princeton University data, by 2057 we are going to have at least 110% raise of global greenhouse gas emissions (GHG). Through the release of carbon and

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<sup>1</sup>Oran R, Young (2011), *The future of the Arctic: cauldron of conflict or zone of peace?*, 87(1), 187, The Royal Institute of International Affairs.

<sup>2</sup>LCol. Paul Dittmann (2009), In Defence of Defence: Canadian Arctic Sovereignty and Security, 11(3), 22, *Journal of Military and Strategic Studies* [online], Available from: <file:///C:/Users/Admin/Downloads/57652-Article%20Text-156644-1-10-20100329.pdf> (Accessed 2 October 2019).

<sup>3</sup>Voose, P. (2019), Global impacts of thawing Arctic permafrost may be imminent, *Science* [online], Available from : <https://www.sciencemag.org/news/2019/10/global-impacts-thawing-arctic-permafrost-may-be-imminent> (Accessed 1 November 2019)



other greenhouse gases, that they are trapped in glaciers and permafrost, the aggravation of climate change will increase. Bacteria crumble into organic stuff in the ground unchaining huge amounts of carbon dioxide and methane in the atmosphere. This phenomenon accelerates climate change but also charge the air.

According to the Guardian, the temperatures in the Arctic Ocean and Greenland during May 2019 were extremely above the average with an enormous accelerated melt rate that was not predicted. As a result, we had an early ice retreat, with the second lowest area of ice in the 40 year satellite record being recorded and rising of sea levels.<sup>4</sup> On June, the melted area was over 40% in Greenland.

This Arctic heat will cause a great effect on Greenland's ice cap which is melting quicker than previously thought.

The Arctic sea ice was 12m square kilometers for May which is 1.13m square kilometers below the 1981-2010 average. Researches, by the National Oceanic and Atmospheric Administration (NOAA), revealed that this July a weather station in the Arctic Circle in Sweden, recorded temperatures as great as 34.8 degrees Celsius.<sup>5</sup> This temperature is the highest that has ever been documented into the Arctic Circle.

This summer wildfires were greater than any seen in the past 16 years. On one hand, we had unusually high temperatures and on the other hand, we had to face the strong winds. Across Alaska, more than 400 wildfires were burning during the summer period. In Siberia, hundreds of wildfires too covered about 3 million hectares of land.<sup>6</sup> Wildfires grow faster every year over the Canadian boreal forest and this has the result of the very quick thawing of the permafrost.

As temperatures become warmer in the Arctic, this would bring weather changes around the world, as the Arctic acts like a “global refrigerator”.

The melted Arctic ice will bring dramatic changes in the saltiness of ocean waters,

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<sup>4</sup>Alison Rourke and Fiona Harvey (2019), Photograph lays bare reality of melting Greenland sea ice, *The Guardian*, [online], Available from: <https://www.theguardian.com/world/2019/jun/18/photograph-melting-greenland-sea-ice-fjord-dogs-water> (Accessed 15 October 2019)

<sup>5</sup>Lang, F. (2019), The Arctic Saw Temperatures Soar above 94 Degrees Fahrenheit in July, *Interesting Engineering* [online], Available from: <https://interestingengineering.com/the-arctic-saw-temperatures-soar-above-94-degrees-fahrenheit-in-july> (Accessed 19 September 2019)

<sup>6</sup>Carolyn Gramling (2019), Record heat is burning the Arctic and melting Greenland's ice, *ScienceNews for Students* [online], Available from: <https://www.sciencenewsforstudents.org/article/record-heat-burning-arctic-and-melting-greenlands-ice> (Accessed 20 September 2019).

inevitably leading to more high temperatures and extreme weather conditions.<sup>7</sup>

As the global temperatures are rising unexpectedly, the human activity in the region increased too. Traffic from tourism and shipping, oil and gas exploration will surely create environmental concerns. As a result, soot emitted by this traffic will land on the ice and will transform the icecap into darker than before. The surface will then absorb more sunlight and melt the ice at faster rates than before. During the 21th century, it is predicted that Arctic summers would be very hot and most of the sea ice is going to melt.

In September 2018, the sea ice diminished to its annual minimum and it was down the average of previous decades. This allowed hundreds of ships to navigate and transit the region. The ships (oil and gas tankers) that entered Polar Code waters this year were responsible for 33 percent of carbon emissions. For instance, the year 2019 the cruise ships that reached Greenland, was estimated they burn at about 150-200 tones of heavy fuel oil (HFO) per day. With this maritime traffic, oil spills are more complex to clean up in cold and icy conditions and the lack of technology causes graying of the icecap too.

Due to this problem, Nordic countries have supported the primary steps from the International Maritime Organization (IMO) which is to prohibit the use of HFO as a ship fuel in this area.

This will work as a domino for the energy land-based infrastructure in the area as melting permafrost is undermining Arctic infrastructure. For example, the Alaska Natural Gas Transportation Systems is in danger as long as the unsteady ground might not be able to support the overland pipeline infrastructure.

As the permafrost will continue to melt and storms will rise too, due to the opening of past ice-covered ocean areas, coastal erosion will be an inevitable consequence. Erosion might also threat cultural and archaeological sites.

The high temperatures and the thawing permafrost have already impacts on ice-dependent flora and fauna and its unique and vulnerable ecosystem –both terrestrial and marine-, as everything in nature is connected.

The most in danger species are ice-dependent ones like ice algae, marine mammals and specific sea birds.

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<sup>7</sup> Ospina, C. (2017), Climate Change Impact on Arctic Ecosystems, *Climate Institute* [online], Available from: <https://climate.org/climate-change-impact-on-arctic-ecosystems/> (Accessed 17 September 2019).

Polar bears, which are the top predators in the Arctic, live for the most part of their lives on the sea ice. A change in the ice and a thawing of the permafrost could have a shocking effect on their survival and their population.

Predictions show that in less than 70 years polar bears are most probable to face extinction, causing dramatic effects to the entire food chain with great imbalances in species. A lot of the prey species that polar bears rely on will also be affected.

The floating ice year by year is ever less and is no longer a safe platform of marine mammals. Polar bear populations will surely be decreased as they will be exhausted from swimming tens of miles to arrive at their established ice pack hunting grounds. Red foxes in the region will have to migrate northwards and seal predation will fall due to fewer polar bears.

As the sea ice temperature increases, marine fish stocks on Arctic could also be affected, which are a food source for the rest of the world and its economy.

One of the most important results of global warming is the living conditions of the native people, which are closely related to the environment.

Their long-established way of life is changed dramatically, which was based on hunting and fishing. They are deeply affected by changes in melting snow and sea ice and as weather becomes more and more unstable, they are facing more challenges.

As this region lacks infrastructure, medical care and education those native people have been abandoned all these years.

In 2018, the local fishermen and hunters of the Natural Resource Council of Attu in Greenland were given the Nordic Council Environment Prize. Those indigenous people were awarded for their long-standing dedication and their experiments in the Arctic.<sup>8</sup> One of their most important observations was that sea species are moving north because of the warmer waters.

The indigenous people, along the Bering and Chukchi coasts, have been already removed due to the melting permafrost, the coastal erosion and the migration of

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<sup>8</sup>Lehtomaki, P. (2019), We can save the Arctic if we follow the Nordic countries' lead, *World Economic Forum* [online], Available from: <https://www.weforum.org/agenda/2019/10/save-the-arctic-nordic-countries-climate-change/> (Accessed 30 October 2019).

several fish species northwards.<sup>9</sup>

The danger that is being created in Arctic ecosystems, in local communities and in the way of living of the indigenous people is a crucial component about the future development.

On the other hand, we could say that if the region becomes more approachable for exploitation of oil and gas, the indigenous people will have a profit also. Companies of oil and mining have to examine the interests of the indigenous communities in the region. For example in northern Norway the companies are pushing for compensation the Sami who have legal rights to specific local resources.

*MOSAIC (MULTIDISCIPLINARY DRIFTING OBSERVATORY FOR THE STUDY OF ARCTIC CLIMATE)*

Mosaic is a mission that has a target to find out the unexpected warming rates that are exceeding twice the global average in the Arctic and to put up a framework regarding the Arctic development sustainably. It is a campaign of 150 million dollar and they have been participated people from 19 different countries. This mission will be the largest and also the longest expedition in history and the people that are going to take part in this project, will have to face very hard conditions such as heavy storms, darkness, polar nights and extreme temperatures.<sup>10</sup>

A ship which started from Tromso (Norway) on September 2019, placed itself in the transpolar drift stream and will have to stay on the surface to northern Greenland, trapped in ice for a year. The project will take place mainly on a German ice breaker (Polarstern) but there are other four ice breakers from Sweden, China and Russia that are going to transport people and supplies too. The researchers will only use red lamps in order to study phytoplankton and algae. Guards should wear night vision goggles to search for polar bears.

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<sup>9</sup>Charles K. Ebinger, EbieZambetakis (2009), The geopolitics of Arctic melt, 85(6), 1219, *International Affairs* [online], Available from: [https://www.brookings.edu/wp-content/uploads/2016/06/11\\_arctic\\_melt\\_ebinger\\_zambetakis.pdf](https://www.brookings.edu/wp-content/uploads/2016/06/11_arctic_melt_ebinger_zambetakis.pdf) (Accessed 5 October 2019).

<sup>10</sup> Gibbens, S. (2019), Scientists are about to spend a year trapped in Arctic ice, *National Geographic* [online], Available from: <https://www.nationalgeographic.com/environment/2019/09/inside-training-for-mosaic-largest-arctic-expedition-in-history/> (Accessed 9 October 2019).

This mission will allow a more detailed scientific basis for every decision on climate change mitigation and modification. One year of taking exact measurements and having the opportunity to observe the climate conditions and changes could give the researchers the raw data in order to say what may happen as the Arctic region warms so much.

It is worth mentioning that it is very difficult to understand the fluctuations of Arctic degrees due to a lack of observations in the center of the Arctic, mainly during the spring and winter as the sea ice is very thick.

One of the latest news is that the Russian navy has discovered five islands due to melting glaciers, collapse and dramatic changes of the temperature in the Arctic. At first, these islands were glaciers and they just stopped to be part of the main glacier. According to a UN report, glacier loss in the Arctic during the period 2015-2019 was greater than in any other five-year period on record.<sup>11</sup>

Those five new islands have been located in Vize Bay off Novaya Zemlya, a wide archipelago.

To sum up, it is in our hands to create a more sustainable future for the Arctic if countries are willing to work collectively through international political efforts. The Nordic countries have already made a step towards a transition to carbon-neutral societies. Also, the Nordic Arctic Co-Operation Program 2018-2021, by the Nordic Council of Ministers, sponsors a variety of projects that aim to promote and to develop the sustainability in the Arctic.

## ***2.2. New energy shipping routes***

The new energy shipping routes nowadays are open due to the melting ice through the past years. In 2007, more than one million square miles of ice melted. The region had then half of its ice that existed in 1950.

These sea routes not only will reduce the travelling time but also will help to keep

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<sup>11</sup> Melting glaciers reveal five new islands in the Arctic, *The Guardian* [online], Available from: <https://www.theguardian.com/environment/2019/oct/22/melting-glaciers-reveal-five-new-islands-in-the-arctic> (Accessed 13 November 2019).

away from pirates in the Gulf of Aden.<sup>12</sup>

The routes are approximately as much as 50 per cent shorter than those through the Suez and Panama canals.

The Northwest Passage is a famed overall route on Russia's side of the Arctic between North Cape and the Bering Strait. The passage is located entirely within the Arctic Circle, 500 miles north of the Arctic Circle and less than 1,200 miles from the North Pole.

This passage includes all the East Arctic seas and connects also the Atlantic and Pacific Oceans through deep channels, through the Canadian Arctic Archipelago, from north of Baffin Island to the Beaufort Sea.

In the past years, this passage was impossible to transit due to the thick ice. If this passage is open, the advantages are crucial. Voyages, starting from Europe to eastern Asia, would be shorter in half and the Alaskan oil would transfer faster to reach USA. The transportations costs could be much fewer than before. Canada would be benefit if the passage remains open and reliable for few months of the year as it would give to the country an important economic and military control.<sup>13</sup>

All routes via the Northwest Passage travel among the islands of the Canadian Arctic Archipelago. According to this, Canada supports that this route belongs to Canadian Internal Waters but, on the other side, the USA military have shipped a lot of submarines through this route without the permission of Canada, based on the fact that this area is considered as an International Water.

In 2007 and for the first time in recorded history, this passage was entirely ice-free and passable for 36 continual days, which means non-sea ice capable commercial vessels were able to flow. This year confirmed that routine shipping could transport between western North American, Asian and European markets at a, theoretically, lower cost than before, using the traditional route through Panama Canal.

In 2012, 30 ships passed through the passage, a new record in history. The first large ice sea freighter, Nordic Orion, in 2013 used this passage. In 2016 we had a new record with the first cruise ship Crystal Serenity, with 1,700 passengers and crew

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<sup>12</sup> Oran R. Young (2011), *The future of the Arctic: cauldron of conflict or zone of peace*, The Royal Institute of International Affairs.

<sup>13</sup> Hobart M. King, *What is the Northwest Passage?* [online], Available from: <https://geology.com/articles/northwest-passage.shtml> (Accessed 16 October 2019).

members, navigate and pass this route.<sup>14</sup>

The Northern Sea Route (or SevMorPut or NSR) is a route running along the Russian Arctic coast from the Kara Sea, along Siberia, to the Bering Strait, connecting Asia and Europe. This route lies all of it in Arctic waters within the Russia's Exclusive Economic Zone (EEZ), connects north eastern Asia with northern Europe through Siberia and doesn't have access to the Atlantic.

When ice melts and warm temperatures shrink ice caps, the Northern Sea Route could be a possible way for a shorter journey for ships travelling from east med to ports in Europe and eastern North America, than the Northwest Passage over Canada. The kinds of ships that enter and pass through this route are both ordinary ships but also those that are built to move through thicker ice.

In September 2017, the Danish *Venta Maersk*, traveling from East Asia to northern Europe, was the first cargo to complete its journey through the Northern Sea Route, with the help of a Russian icebreaker. As it was expected, via this route the trip was 10 days shorter than the southern route via the Suez Canal.

The main traffic is located on the western part of the route, in areas where are ice-free especially during the August-October period. Many of these ships transit oil from the terminal of Novy Port or liquefied natural gas (LNG) that work for the Yamal LNG plant.

A new brand ship, named *Nikolay Urvantsev*, made its maiden voyage on August 2019 via the Russian Arctic waters. This ship is a part of a 15 LNG carrier's fleet and until the end of this year will shuttle to and from the Sabetta terminal in the Yamal peninsula.

The Northern Sea Route is very important for Chinese economic interests and relations with Russia too. An alternative route using the Arctic waters from Shanghai to Europe could mean fewer kilometers and a giant cost-saving. China is more likely to show interest to import goods and not to export them via the Northern Sea Route. Both Russia and China are informed that the route is going to become more and more useable during the next few years and they want to invest in ice-hardened liquefied natural gas container ships and highly developed icebreakers. Russia has above 40 of them but, at present, China owns only two icebreakers.

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<sup>14</sup> History.com Editors (2019), Northwest Passage, *History* [online], Available from: <https://www.history.com/topics/exploration/northwest-passage> (Accessed 20 October 2019).

The route is one of the top priorities for the Kremlin as President Putin claimed that he wants annual shipments to arrive at 80 million tons in year 2024.<sup>15</sup>

In the previous year, shipments estimated at about 20 million tons and the Ministry of Natural Resources shows a total amount of 30 million tons by the end of this year. However, the amount of shipping companies that want to use this area for their navigation of their ships stays low. In 2019, a total amount of 662 ships have travelled through the NSR which is at the same level as last year, according to the Northern Sea Route administration.

For the time being, a small number of ships transfer and carry goods through the Northwest Passage. According to the official NSR list of vessels, approximately half are tugs and support and service ships, mainly about oil and gas activities.

Last but not least, according to a report by Copenhagen Business School, the Northern Sea Route can't be economically viable until 2040 due to high insurance rates in the region, higher safety considerations and until the region is more ice free.

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<sup>15</sup> Staalesen, A. (2019), There is no ice left on Northern Sea Route, *The Barents Observer* [online], Available from: <https://thebarentsobserver.com/en/arctic/2019/08/there-no-ice-left-russias-northern-sea-route> (Accessed 28 September 2019).



### **3. Arctic Energy Resources and Contemporary Oil and Gas Operations**

#### ***3.1. Energy Resources in the Arctic and Resource Extraction Problems***

In the Arctic region, underneath the tundra and ice, there can be found a lot of amounts of undiscovered oil, natural gas and minerals. The main energy resources, especially in the seabed, are oil and gas. Also, there is a great amount of minerals, such as gold-diamonds-copper-iron-zinc-uranium and rare-earths that are in a great demand nowadays. This is the main reason why today there is a race for Arctic domination and sovereignty between superpowers and Arctic States like the USA, Canada, Russia, Norway and Denmark.

A research, that managed in 2008 by the United States Geological Survey ( USGS), had showed that the untapped oil and gas reserves are essential.<sup>16</sup> The estimation about the reserves of oil are about 90 billion barrels which means that the Arctic might contain pretty much 13% of the global mean of undiscovered oil. From this study the conventional oil, the non-conventional hydrocarbons such as oil shale's, heavy oil, tar sands, coal bed methane and gas hydrates are excluded. Most of those reserves are on the Russian side.

On the other hand, the undiscovered gas is approximately three times as much as the estimated oil on an energy equivalent basis. The Arctic has an estimated 1,669 trillion cubic feet of gas, equivalent to 24.3 % of the world's present known reserves.<sup>17</sup> Of course, even with these estimated amounts of oil and gas, they will not be exploited in the near future.

In 2011, Statoil made its greatest oil and gas discovery in the field of Barents Sea.

In the Arctic today we have ice-free periods which mean also huge changes and prospects for the development and the exploration for hydrocarbons and oil. As the sea ice is rapidly decreased due to climate change, the existence and the development

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<sup>16</sup>Peter F. Johnston (2010), Arctic Energy Resources and Global Energy Security, 12(2), 2, *Journal of Military and Strategic Studies* [online], Available from: [http://oceans.mit.edu/wp-content/uploads/arctic\\_energy\\_security.pdf](http://oceans.mit.edu/wp-content/uploads/arctic_energy_security.pdf) (Accessed 7 September 2019).

<sup>17</sup>Desjardins, J. (2016), The Energy and Mineral Riches of the Arctic, *Energy* [online], Available from: <https://www.visualcapitalist.com/energy-and-mineral-riches-of-the-arctic/> (Accessed 13 October 2019).

of infrastructure for the exploitation of hydrocarbons and minerals comes into table.

Due to the effects of climate change, it might be viable to extract huge quantities of oil, gas and other natural resources from the region. The major potential natural gas reserves in the Arctic is about 30% of global estimated gas and independent companies will play a significant role on it.

The oil companies are attracted searching for opportunities in the region. There are several nationalized oil companies (NOCs) that are mostly involved in the percentage of oil reserves. This causes the reduction of the access to the reserves by the independent oil companies (IOCs). The Russian companies control the Russia's Arctic waters which are not open for other companies.

The two big oil companies, Exxon Mobil and British Petroleum, have showed that they want to increase their activity in the Arctic, which focuses mainly on gas extraction. The oil operations will decreased due to taxes under carbon emission caps, the replacement of gas instead of oil in specific markets( such as automotive) and the increase of the electrical demand too.

There are some challenges of the extraction progress that we must give them the priority it's needed.

First of all, there are technical challenges that we must take into consideration of extracting, processing and shipping the product to the final consumer. The cost of taking the product to the market must be lower than the price for the resources in order to have a profit.

There are other challenges posed by the climate and topography. From one hand the ice is melting but there is still the problem of ice flows and the stable ice cover. The large pieces of ice might cause damage or ruin completely the offshore oil and gas infrastructure, such as drilling platforms, ships and pipelines. If there are going to be some improvements in the resistance of these constructions, then the operating costs will increase automatically.

Another challenge is the icing of superstructures. The deeper ice structures are gouging the sea-floor, so any pipelines that are being placed underwater must be constructed guarded to this phenomenon. The icing could make these surfaces unsafe for the infrastructure and block shipping channels, which is going to add costs in the companies.

Another notable operating cost is the transportation cost of oil and gas to south

markets. There are two main examples for this cost. The first one is the functions in Alaska's North Slope and the pipeline networks that ship oil and gas from Russia's Yamal region to Europe through the Baltic Pipeline System.

One more challenge is weather that may causes problems to hydrocarbon extraction in the region. As time passes, there will be more open waters but this will also mean intense storms and also many other enormous weather events as ice cover turns to be less erosive.<sup>18</sup>

One more challenge is the delicate nature of the Arctic ecosystem itself. The ice-cover and the water, that is shallow, create a sensitive ecosystem and the flora and fauna of the region may be in danger or, even worst, become extinct.

On one hand, companies will need to invest in more expensive equipment and technology in order to deal with the new challenges in the region and on the other hand , many oil and gas companies , concerning about the environmental destruction, will reduce their operations in the Arctic.

The environmentalists will do make a strong effort to impose severe rules and regulations on offshore hydrocarbon projects that will lead to a potential delay of these developments and to a greater cost of oil and gas. In recent years, demand and prices are being slowly down, so companies postpone investments decisions and projects. Another component is the fact that these companies are less favor to find and attract investors or creditors to invest and aid long-term project.

### ***3.2. Oil and Gas Operations***

The exploration and the development of oil and gas in the Arctic are becoming more and easier because of the melting ice. At the same time, this also has negative impacts for the rest of the world due to climate change. This phenomenon is called the “Arctic

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<sup>18</sup> Peter F. Johnston (2010), Arctic Energy Resources and Global Energy Security, *Journal of Military and Strategic Studies* [online], Available from: [http://oceans.mit.edu/wp-content/uploads/arctic\\_energy\\_security.pdf](http://oceans.mit.edu/wp-content/uploads/arctic_energy_security.pdf) (Accessed 7 September 2019).

Paradox”.<sup>19</sup>

### THE CASE OF Barents Sea FIELD

In 1981, it started the exploration drilling in the shallow part of the Barents Sea. The Barents Sea is more than a transit rather than a stationing area. The military significance of the European Arctic is associated with the chance of internal transit of strategic submarines via the Barents Sea and the external transit from the Barents Sea to possible stationing areas in the Arctic or Atlantic Oceans.<sup>20</sup>

*RUSSIA (Stockman field- Prirazlomnoye field- Ludlovskaya field- Murmanskoye field- Ledovoye field)*

A lot of deposits were recognized, such as the Prirazlomnoye oil deposit (which means “at the geological fault) and the Stockman gas condensate deposit.

The first one was located in the Pechora Sea and its profit is estimated at about 610 million barrels of crude oil.<sup>21</sup> This field is the only Russian hydrocarbon production project operated on the Arctic region. The primary facility is the first class offshore ice durable oil producing stationary platform (rig). This offshore platform is the first of its kind construction in Russia. The platform can resist to extreme weather conditions. It is the only Arctic field that is developed under extreme weather conditions, such as freezing ice, for at least seven months of the year.

The license of production and development of hydrocarbons in this field is owned by Gazprom Neft Shelf (an oil arm of Gazprom) and the first operations started in 2013. The new kind of crude oil that was produced in this field was named ARCO (Arctic Oil) and came into the global market in 2014.

The danger of an oil blow-out while drilling is very small due to the installation of a

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<sup>19</sup> Chowdhury Shah (2017), *Governing environmental security in the Arctic: the perspective of the Arctic Council on climate change, fossil fuel exploration and shipping operation*, PhD. Thesis, University of Tampere.

<sup>20</sup> SAGE journals (2019), *Armed Forces & Society*, 35(1), 369 [online], Available from: <https://journals.sagepub.com/toc/afsa/current> (Accessed 12 November 2019).

<sup>21</sup> SAGE journals (2019), *Armed Forces & Society*, 35(1), 367 [online], Available from: <https://journals.sagepub.com/toc/afsa/current> (Accessed 12 November 2019).

two-tier protection system that is developed for the conditions in this oilfield.<sup>22</sup> For the environment protection, there are specific equipment in the icebreaking vessels and oil-spill response (OSR) resources that are placed onshore.

The Stockman gas deposit (or the Shtokmanovskoye) is in the northwestern part of the South Barents Basin and is regarded to be the world's largest known offshore natural gas field. Its profit is estimated approximately at 3.2 trillion cubic meters. The license to explore and to produce oil on this field is owned by the Gazprom SheldDobycha Company, which is a subsidiary of Gazprom. For the development of this field, Gazprom wanted the knowledge and the investment of foreign oil companies and a special purpose vehicle (SPV), named the Stockman Development Company and a partnership was made between Gazprom-Total and Statoil. In 2006, Gazprom declared that it would be the only owner of the development of this field and the gas is going to be sold to Europe through the planned Nord Stream pipeline via the Baltic Sea. For this reason, a pipeline was built from the Stockman field to the mainland.

Due to the shale gas revolution and other dramatic changes in global markets, this project was delayed and postponed until 2017. The new deputy minister I. Sorokin claimed that the field is going to be put on production by 2035, in order to satisfy Russia's LNG objectives of becoming a top 5 exporter and a competitive player. This is a completely rebellious idea due to the delay of this project for so many years. The world's biggest "trapped" field might continue to remain at this situation until an appropriate market way out is found.

At the time present, Russia has Arctic oil onshore operations that are being located in the Timan- Pechora area. The gas extraction takes place in the Yamal Peninsula area and the Yamburg field. This pipeline connects it to Norilsk on the northwest point of the Central Siberian Plateau. For the time being, there are no Russian offshore hydrocarbons extraction operations.

Russia owns the world's largest navy of Arctic icebreakers, 28 in total and with 7 nuclear power vessels including. The oil terminals are located in Kolguev, in Arkhangel'sk, Ob Bay, MokhnatkinaPakhtha, Murmansk, Varandey and Vitino. The oil

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<sup>22</sup> Gazprom neft (2018), *The Prirazlomnoye Project* [online]. Available from: <https://www.gazprom-neft.com/company/major-projects/prirazlomnoe/> (Accessed 13 November 2019).

shipping is passing through the Barents Sea for Europe and North America.

Murmansk gas field is located about 220 kilometers north of the Murmansk coast and is thought to play an important role for the natural gas industry. Both two leading energy companies of Russia, Gazprom and Rosneft, wanted the license to this field.

#### *NORWAY (Snohvit field- Johan Castberg field- Goliat field)*

Norway is another country that owns also oil and gas operations and pipelines that are mainly located in the northern North Sea, in Norwegian Sea and also in the some parts of the Barents Sea.

The main export facility north of the Arctic Circle is the Snohvit Gas Liquefaction plant (proven in 1981) that is placed in Norway and is the larger of the two active Barents fields. This is connected through an undersea pipeline to a producing gas field in the Barents Sea. The Snohvit plant is the first of its kind and its base is being places on the seafloor. It is worth mentioning that only 15 percent of its reserves have been tapped and this field has the potential to be one of the biggest sources of gas until the 2040s.<sup>23</sup>

This plant became usable in 2007 and in 2008 exported about 77 billion cubic feet of LNG which was barged into tankers and delivered to consumers all over the world, especially in Spain, the USA and France. The gas is transported via pipeline to Melkoya out Hammerferst, where it is cooled into liquid form (LNG).

The Goliat oil and gas field is located north of Russia and Norway, in the production license (PL) 229 in the Barents Sea, and it is the first oil reservoir that started production in this area. This field is owned by Var Energi AS (65%) and EquinorEnergiAS (35%) and is the only producing oil field in the Barents Sea. The oil from Goliat is transferred by boats from the field. The first steps were made in 2009, where the Norwegian Parliament authorized the project for development and operation and the first oil was drifted in 2016.<sup>24</sup> The Goliat field is estimated to be in production for at least 15 years.

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<sup>23</sup>McGwin, K. (2019), As Norway's North Sea fields wind down, the replacement remains a day away, *Arctic Today* [online], Available from: <https://www.arctictoday.com/as-norways-north-sea-fields-wind-down-the-replacement-remains-a-day-away/> (Accessed 29 September 2019).

<sup>24</sup> Offshore Technology (2019), *Goliat Oil and Gas Field, Barents Sea* [online]. Available from: <https://www.offshore-technology.com/projects/goliat/> (Accessed 13 November 2019).

The Plan for Development and Operation (PDO) was approved for the Johan Castberg oil field in 2018 and now is under development. This field is going to produce in 2022. The oil will be transported onto shuttle tankers.

In the USA Alaska we have both onshore and offshore oil and gas operations. One of the targets of USA's strategy is to become more and more energy independent and in order to reach this; they put more pressure to unlock more Alaskan reserves. Today, the Northern Fleet has forty-two functional submarines, including eleven ballistic missile submarines (SSBNs), about twenty multipurpose attack submarines (SSNs) and four cruise missile submarines (SSGNs).

### THE CONSTRUCTION OF OIL AND GAS TERMINALS ON THE KOLA PENINSULA

The Kola Peninsula is a peninsula in the northwest of Russia on the shores of the With and Barents Seas, it composes the biggest part of the territory of Murmansk Oblast and lies almost within the Arctic Circle.

During the Cold War, the Soviet Union built its naval bases on the Kola Peninsula. The Northern Fleet had the need for ice-free ports that had their base close to Western Europe and the USA. This way, there would be access to the Arctic Ocean and to the North Atlantic via the Barents Sea.

Not only today but also in the near future, the strategic importance and its port facilities of Kola Peninsula play a significant role. In the Kola fiord, which is free of ice all the year, the water is deep enough in order to accept supertankers with deadweight of up to 300,000t. If this port becomes more and more accessible and able to transit oil, this mean that the Siberian oil would become extremely competitive other option to the Persian Gulf oil that the USA imports nowadays.

In 2002, four Russian oil companies- TNK, Lukoil, Yukos and Sibneft, signed a Memorandum of Understanding for a concept of the development of a pipeline system in order to transit crude oil via a sea terminal close to Murmansk.

In 2005, an agreement was signed between Gazprom and the Russian Navy. The Kola Peninsula is the most nuclearized area in the world so it's very likely for

Russia to use this region in order to secure a political advantage.

#### THE CASE OF THE NAVAL YARDS IN SEVERODVINSK

In this naval yard, there are built all of the Northern Fleet's nuclear submarines and, in the beginning, the aim was towards civilian clients, and especially the Russian petroleum manufacturing. The administration of Russia wanted, on one hand, to fit the Naval Yards to the new economic situation and, on the other hand, wanted to preserve their capacity in their military production.

In 2000, there were many civilian businesses that wanted also to demilitarize the Severodvinsk yard. Nowadays, the yards are mostly ruled by market rules rather than strategic or military ones.

#### THE CASE OF DREKI OFFSHORE

An important area of possible offshore in the Arctic is an area called Dreki offshore. This northern part of the Dreki area refers to an ocean zone controlled by Iceland and Norway and it's included in Iceland's maritime economic exclusive zone. Still this offshore is commercially unviable but there are many claims that there are oil and gas reserves.

In 2012, the Icelandic National Energy Agency (NEA) permitted two licenses for oil exploration to Valiant Petroleum and Faroe Petroleum and one year after, the Chinese CNOOC turned into operator in a third license.

Unfortunately, all those three licenses have been given up because of the low possibilities to find commercially recoverable hydrocarbons in this complex area.



## **4. Arctic Governance and the importance of the Arctic Council**

### ***4.1. Who governs the Arctic?***

First of all, the Arctic, which ties together three continents Asia-Europe- North America, is composed of internal waters, land, exclusive economic zones, territorial waters and high seas. Apart from high seas, all the above are under the jurisdiction of the eight Arctic coastal states. But the Arctic covers only the northern region of each state.

Under international law, the Arctic Ocean and the North Pole are not controlled by any country. The Arctic Ocean, then, is ruled by the law of the sea and all countries accept the customary international law. The five countries, that are surrounding, are restricted to a territorial sea and an exclusive economic zone. Beyond the territorial seas (12 nautical miles) of the coastal states, the waters are regarded as “high seas” or international waters.

On and below the seabed of those areas, exploration and exploitation of mineral resources are under the operation and control of the UN International Seabed Authority.

As it can be assumed, the Arctic is managed as claimed by the domestic laws and regulations of each Arctic state but it is also a region that is administered by bilateral and international agreements and contracts.

To begin with, in 1959 we had the Antarctic Treaty and it was somehow a model for Arctic governance. Generally, the legal framework under which the Arctic is governed is the UN Convention on the Law of the Sea (1982), which established freedom of sailing rights. UNCLOS settled territorial sea boundaries, as well as in any other part of the world, (twelve miles offshore) where coastal states have extensive powers over foreign shipping and total power over fishing and seabed resources, exclusive economic zones (between 12 and 200 miles offshore) where coastal states have no authorities over foreign shipping but power over fishing.

UNCLOS also created the International Seabed Authority and conflict resolution procedures. (I.e. the UN Continental Shelf Commission). Under the rules of UNCLOS, a country has a ten-year period in order to make claims to an extended continental shelf which, of course, gives exclusive rights to the resources on and below the seabed of this area. Most of the oil and gas is founded on the continental shelf of coastal states.

The Arctic states in order to handle this changing situation in the region, they should make agreements in order to prevent potential conflicts with one another over territorial claims. There are some countries around the world that did not agree with the treaty and claimed that the Arctic shouldn't be governed by a handful of countries. Those Arctic debates and discussions are involved basically Arctic states. The geographic location of the Arctic makes it easier for a more sovereigntist and principal approach rather than an internationally collaborative one, as in the case of Antarctic for example. So, Arctic has not a unique international governance regime. According to this, it is very difficult to reach international collaboration in Arctic governance and that is why an Arctic treaty is hard to be created.

Generally speaking, Arctic governance is a complex system of shattered international and regional regulations which are accompanied by soft law procedures.<sup>25</sup> These two different types of legal systems and frameworks may lead to conflicts and challenges in the area.

Governance as a concept is complex and its specific meaning it's not precisely clear, as it has a lot of meanings, one of which is related to the right to utilize different types of power – economic, military etc- .

### *THE ARCTIC GOVERNANCE PROJECT (AGP)*

The AGP is one big effort in order to make Arctic more effective and normatively supportable regarding the promotion and the raise of stability and peace. It includes measures that can be taken so as to develop the present governance systems in the Arctic. For example, one of the main targets is the promotion of

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<sup>25</sup> Arctic Centre University of Lapland, *International Arctic Law- IntArcticLaw* [online]. Available from: <https://www.arcticcentre.org/EN/research/NIEM/Projects/International-Arctic-Law#> (Accessed 5 November 2019).

adjustment, the reassurance of the Arctic as a field of peace and sustainability with powerful policy procedures.

#### ***4.2. The importance of the Arctic Council***

The Arctic Council, which was founded in 1996 in the Canadian capital Ottawa, was one of the limited attempts during the 1990s in order to start new multilateral works in the region and ended up a main body. It is a forum that targets to work with cooperation to manage environmental and economic problems in the north. It is a high level intergovernmental and indispensable forum for Arctic affairs who makes policy among the Arctic States, rather than an international organization. As the Arctic is changing rapidly, the Arctic Council aims to foster coordination and interaction on issues of environmental protection and sustainable development.

Since the end of the Cold War, the Arctic Council had managed to maintain peace and security in the Arctic despite the dramatic changes in economic, political and environmental conditions.

The member States of the Arctic Council are Canada, the Kingdom of Denmark, Finland, Norway, Iceland, the Russian Federation, the United States and Sweden. Six organizations are, also, permanent participants in order to provide participation with the Arctic indigenous peoples. These organizations are the Aleut International Association, the Arctic Athabaskan Council, the Inuit Circumpolar Council, the Gwich'in Council International, the Russian Association of Indigenous Peoples of the North and the Saami Council.

In addition to the Arctic States there are also observer status which are not Arctic states. Their right to participate in the Arctic Council was a result of a debate among the member states. Russia and Canada were afraid of this entrance, as they were not sure if the primacy of Arctic States in Arctic affairs could be weakened. On the other hand, Nordic Countries were very encouraging about the new observer status.<sup>26</sup> Today, we have 32 countries and organizations with this status that can propose projects, but they don't have the right to vote.

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<sup>26</sup>Nicoll, A. (2012), *Russia in the Arctic: economic interest override military aspirations* , 18 (9) [online], Available from: <https://www.tandfonline.com/doi/abs/10.1080/13567888.2012.757840> (Accessed 7 October 2019).

In general, the Council members target to preserve the Arctic as a zone of stability and peace in accordance with the rules of international law through the expression of their views and concerns too.

In accordance with the Council's founding document, the Ottawa Declaration, the eight Arctic States certified their loyalty to protect the environment and the biodiversity of the Arctic. One of the main characteristics of this Declaration is the lack of a legal nature as an international organization, a non-defined financial donation and the inclusion of indigenous representatives as stable participants. The last one is a very important achievement and, with the creation of the Permanent Participant (PP) category, is given to the Arctic Council an institutional culture that thinks highly of local opinions and traditions.

The Ottawa Declaration discourages conversations about military security and that way the Arctic Council is avoiding involving in conflicts in global politics.

In 2009 Arctic Marine Shipping Assessment constitutes that the Arctic states formulate a search and rescue instrument.<sup>27</sup> The Arctic states agreed upon a number of issues, such as climate change, Arctic marine development, biodiversity, energy and human health. They signed also the "Tromso Declaration" in order to protect the Arctic from the effects of climate change.

In 2011, we had the creation of a search and rescue treaty by the Arctic Council members, the first valid binding treaty. This contract establishes a Permanent Secretariat, which means that the Arctic governance attempted to become from a loose institution into a more formal one. A body like this could definitely add power to the Arctic Council in global politics. Member nations have signed two legally binding instruments, a search and rescue agreement in 2011 and a marine oil pollution preparedness and response agreement in 2013.

In 2013, China-India-Italy-Japan-Singapore and South Korea became observer states.

In 2018, members of the University of the Arctic Thematic Network on Geopolitics

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<sup>27</sup> Charles K. Ebinger, EbieZambetakakis (2009), The geopolitics of Arctic melt, 85(6), 1219, *International Affairs* [online], Available from: [https://www.brookings.edu/wp-content/uploads/2016/06/11\\_arctic\\_melt\\_ebinger\\_zambetakakis.pdf](https://www.brookings.edu/wp-content/uploads/2016/06/11_arctic_melt_ebinger_zambetakakis.pdf) (Accessed 5 October 2019).

and Security nominated the Arctic Council for a Nobel Peace Prize.<sup>28</sup>

In May 2019, the Foreign Ministers of the Arctic States signed the Rovaniemi Joint Ministerial Statement 2019.

The target of the Working Groups is to operate on subjects such as the effects of climate change in the Arctic, adaptation and elasticity and, of course, the protection and sustainable use of living resources.

### ***4.3. Non-Arctic States and organizations***

The Arctic continues to be a hot issue for many organizations and non-Arctic states, such as European Union and NATO.

As ice melts in the Arctic, non-renewable sources are more approachable, mainly oil and gas. The two shipping routes, as mentioned before, during the previous years were too dangerous to transit but now, they are being used repeatedly. Those changes have increasing consequences on the rest of the world too.

To be more specific, a number of Foreign ministers started to pay attention to the Arctic and in 2000, European Union included northern dimension of their foreign strategy and policy.

EU has a small connection with the region as it includes in the Union only three Arctic states, Denmark- Finland and Sweden. Those three states should comply in accordance with EU law, which manages a lot of issues related to Arctic developments.

The emphasis of the EU is in the insurance and protection of the environment and Arctic's unique ecosystem. EU promotes the idea that there should be new mechanisms in order to promote the interest of all European states in the region.

In the near future, the European ships will play an important role in Arctic maritime transport. About 50 percent of fish from the Arctic Ocean being consumed in the EU and EU countries maintain the world's largest commercial navy.

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<sup>28</sup> Exner-Pirot. H. , Ackren, M., Loukacheva, N., Heather, N., E.Nilsson, A., Spence, J. (2019), Form and Function: The Future of the Arctic Council, *The Arctic Institute* [online], Available from: <https://www.thearcticinstitute.org/form-function-future-arctic-council/?cn-reloaded=1> (Accessed 22 September 2019).

The involvement of the EU in Arctic discussions would promote the creation of agreements in the region and make them compatible with the EU law. Also, for the European Union it would be simpler to translate these contracts into suitable EU rules, securing their execution by member states.<sup>29</sup>

The European Union is a strong economic organism with lots of economic resources and this may be another crucial component in order to help potential challenges in the Arctic. The EU has enacted its own Arctic Policy in 2008, which focused on the protection and the maintenance of the Arctic, on the sustainable use of its resources and on international collaboration. We shouldn't forget that about one quarter of Arctic oil and gas is drifting to the EU countries.

In 2009, the EU possessed its interest to get involved into the Arctic Council about future developments and operations in the area but, with no results.

A lot of Arctic states have made it clear that they worry about any potential EU involvement in Arctic discussions could possibly make things more complicated, with first the objections by Canada.

The Union has already support Polar research by committing huge amounts (approximately 200 million Euros during the period 2002-2012) and other economic and environmental developments.

The EU is a body with an important influence in politico-economic differences between northern and southern Europe that might be increased due to the resource extraction in the Arctic. The involvement of the EU in Arctic progress will help relieve this effect and limit these North-South tensions, creating a more balancing zone for these newly energy resources. EU is a significant international player and its existence in Arctic Council conversations would increase the Council's power and authority too. As more international players get involved in Council's conferences, there would be broader recognition of its policies and legitimacy.<sup>30</sup>

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<sup>29</sup> Czarksi, M. (2015), Who governs the Arctic?, *Open Canada* [online], Available from: <https://www.opencanada.org/features/who-governs-the-arctic/> (Accessed 9 October 2019).

<sup>30</sup> Czarksi, M. (2015), Who governs the Arctic?, *Open Canada* [online], Available from: <https://www.opencanada.org/features/who-governs-the-arctic/> (Accessed 9 October 2019).

But there is not only the EU and NATO that show interest for the Arctic. Year by year a lot of Asian states have showed also their attraction of what is happening within the Arctic Circle. A new big player in the Arctic is surely China. Even though China doesn't own territory or borders in the Arctic region, it shows interest for the potential shipping routes and navigability of the Arctic. China is an observer state on the Arctic Council, and they might want to search for energy resources there. China's Polar Research Institute had added a department of strategic studies which promotes the interests in the Arctic between non-Arctic states.

## 5. Understanding the Arctic Security

### 5.1. Arctic Security Environment

#### 5.1.1. Historical Understanding of security in the Post-Cold War era

In a very simply way, the definition of the word “security” is a condition with no risk at all. It refers to all those measures that are taken in order to protect something. Through time, the concept of security has re-shaped. In the start, it was more connected with the lack of military danger to a country but as time passes, it was more related with a social concept. The modern ideas of security are also including human, society, environment, resources and economy.

In WWII, we had the first picture that reflected the need for Arctic security. The Japanese possession of the Aleutian Islands of Attue and Kiska was just the beginning.

After WWII, during the Cold War, the Arctic was the main battlefield for USA and Soviet Union with the parallel extremely rapid switch to global War on Terror, which indicated the doubtful nature of present threats. The region was the centre of strategic competition between the US and Soviet Union, as it was the shortest trajectory for nuclear weapons.

During this period of time, most of the Arctic military capacities were dramatically reduced. The new Russian government was charged with a lot of nuclear-powered submarines and, at the same time, scientists discovered that some “persistent organic pollutants” (POPs) were transferred to the polar region.<sup>31</sup> The submarines and those POPs were a serious problem and threat to the Arctic ecosystems and indigenous people too. In order to settle those problems, international agreements were created. The creation of the Arctic Military Environmental Cooperation Program (AMEC), between Norway- Russia- USA and United Kingdom, was the start for the Soviet submarines. For the POPs there was the Stockholm Convention on Persistent Organic Pollutants.

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<sup>31</sup> Huebert, Rob (2012), Climate change and international security: The Arctic as a bellwether, *Center for Climate and energy solutions* [online], Available from: <https://www.c2es.org/site/assets/uploads/2012/04/arctic-security-report.pdf> (Accessed 12 October 2019).



At the same time, scientists found out that there were a lot of changes and rapid high temperatures in the Arctic due to climate change. The most shocking was the melting of ice cover and this led states and companies to see Arctic as an economic potential, creating concerns about possible disputes and conflicts in the area.

During the period 1990-2000, the Arctic became a new international area and is considered the first “Arctic boom” in post-Cold War.<sup>32</sup> After the Cold War, the Arctic, one of the most militarized areas in the world during the War, lost its geo-strategic relevance. The focus in the post-Cold War era moved from military issues to environmental and social ones. Arctic was now a zone of piece with exceptional discussions.

The Arctic security environment and sovereignty are continuously changing in a complex way. Researchers though have a different view and often disagree about the nature of the Arctic security environment.

Globalization has a short presence in the Arctic region. It is composed by fisheries, the opening of the Northwest Passage, whaling and sealing activities, colonialism, exploration and flag planting and scientific collaboration. The evolution of nuclear weapon systems, known as “militarization”, environmental concerns and Arctic energy resources are also factors which shows the globalization in the region. Furthermore, there are new global security problems, especially those concerning the nuclear weapon systems that have been developed in the Arctic region.

The hard security dynamics in the region are determined by two factors. The first one is the development and the effects of conventional missiles and nuclear weapons for Russia and the second factor is the impact of the opening of the North Atlantic sea line of communication (SLOC) for European defense.

Russia has two main targets. The first one is to maintain its regime stability domestically and the second is to achieve a major power status. The government relies on its military power in order to have influence in global issues. For that reason, their national security and their international influence is mainly based on nuclear weapons and capabilities that are somewhat the same with the US.

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<sup>32</sup> Heininen, L. (2011), The end of the post-Cold War in the Arctic, *Nordia Geographical Publications* [online], Available from: <file:///C:/Users/Admin/Downloads/75947-Article%20Text-104986-1-10-20181022.pdf> (Accessed

The Arctic is a region of a great importance for Russia. The ballistic missile submarines that are developed under the Arctic Ocean ice cap are very difficult to track, which is making them appropriate for an unlikely event of a nuclear war. Russia has most of its military forces on the Kola Peninsula, approximately 81.5 per cent of nuclear capacities are placed in the Northern Fleet.<sup>33</sup> The Arctic is also a region for conventional long-range air, sea and land missile capabilities which making the area even greater for Russia's global protection.

The second factor is the impact of the SCLOC. As it is well known, European defense continues to be dependent on US military power. In the extreme scenario of a conflict event between Russia and NATO, the SLOC could play a significant role for the reinforcement of forces from North America to Europe.

### *RUSSIA AND THE BASTION STRATEGY*

The bastion strategy has its roots from the Cold War period. This strategy has as main target to secure the existence of strategic ballistic missile submarines and infrastructure in their surrounded maritime areas, or "bastions". This could be achieved by instituting a multidimensional defense system, with lots of capacities, such as mines, coastal missiles and surface-to-air missiles (SAM).<sup>34</sup>

Especially during the last decade, Russia has invested a lot on military modernization in the Arctic. Since 2007-2008 Russia restarted long-range aviator patrols and reopened Soviet-era air bases with the parallel construction of new military bases on Arctic islands.

The bastion defense is also provided by high-quality attack submarines of Severodvinsk and Akula II and two mechanized battalions close to the Norwegian and Finnish borders.

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<sup>33</sup> Mikkola, H. (2019), The geostrategic Arctic, *FIIA* [online], Available from: [https://www.fiia.fi/wp-content/uploads/2019/04/bp259\\_geostrategic\\_arctic.pdf](https://www.fiia.fi/wp-content/uploads/2019/04/bp259_geostrategic_arctic.pdf) (Accessed 7 November 2019).

<sup>34</sup> Mikkola, H. (2019), The geostrategic Arctic, *FIIA* [online], Available from: [https://www.fiia.fi/wp-content/uploads/2019/04/bp259\\_geostrategic\\_arctic.pdf](https://www.fiia.fi/wp-content/uploads/2019/04/bp259_geostrategic_arctic.pdf) (Accessed 7 November 2019).

## NATO

The five Arctic states that are also NATO members are Canada, Denmark, Iceland, Norway and the US. As a result, each great modification in the Arctic security environment will affect also the NATO's treaty planning of defense.

NATO still doesn't have a specific strategy for the Arctic, although Norway wants a more vivid presence in the region. This alliance's decision is mainly due to the Canada's opposition to the "internationalization" of the region and in order to abstain from disputes with Russia.

After the Cold-War era, NATO hadn't focus on territorial defense and, as a consequence, the Arctic wasn't included on alliance's plans. This has resulted, among other things, in decomposed abilities for situational awareness and maritime warfare. During this period, NATO changed its priorities and focused on its presence in other parts of the world and especially in Eastern Europe but also towards the north as well.

One of NATO's plans is to create a North Atlantic Joint Force Command in order to accelerate situational awareness in the North Atlantic and the GIUK Gap area.<sup>35</sup> There is a lot of improvement between the countries of NATO in the field of significance and the impact of the North Atlantic and the Arctic for European defense.

The presence of NATO in the Arctic has recently increased with its military exercises and starts to gives a lot more attention in the region's territorial defense.

Nowadays, the region belongs to one of the most major players in the geopolitical map. The geostrategic situation of the Arctic has dramatically changed, especially during the past five years. As we had the raise of superpowers, along with the escalated strategic competition between them, impacts and changes on the security environment in the Arctic had raised too.

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<sup>35</sup> Mikkola, H. (2019), The geostrategic Arctic, *FIIA* [online], Available from: [https://www.fiia.fi/wp-content/uploads/2019/04/bp259\\_geostrategic\\_arctic.pdf](https://www.fiia.fi/wp-content/uploads/2019/04/bp259_geostrategic_arctic.pdf) (Accessed 7 November 2019).

### 5.1.2 Arctic Policies from States

#### RUSSIA

Russia has the biggest number of security forces in the Arctic because of their need to protect the region as it is a strategic resource base and priority.<sup>36</sup>Country has more battle ships and battalions that have been placed in the High North than its four Arctic neighbors all together. Also, is the only non-NATO littoral Arctic state and one of the country's strategies is to use bases in the Arctic for ballistic missile nuclear submarines (SSBNs).

During the Cold War period, there was the development of long-range nuclear weapons that had the possibility to launch across the Arctic Ocean. During the Cold War too, Russia developed the strategic surveillance and air defense potentials in the north, as it was afraid of an attack across the Arctic. As an extra measure, Russia setted up eleven forward bomber bases in the Arctic, starting from the Kola Peninsula.

After the Cold War, the military activity in Russia's northwestern side would slowly decrease due to several changes in threat recognition. The past glories of the economic independence and political effects of the Russian military would never be the same.

In 2007, they started long-term bomber patrols in the Arctic and begun again northern patrols of marine surface units. During all these actions, Russia remained most of the time into the international airspace but at some points they went towards borders of Norway, Canada and USA.

During the period 2000-2008, the country had developed its nuclear weapons and, for the first time, Russian nuclear submarines had the chance to safeguard the Arctic ice cover.

In 2007, Russia placed its flag on the ocean floor at the North Pole and disputes concerning about borders and jurisdiction in the northern waters were on the table. There were many military officers that had openly claimed that Arctic is Russian and, of course, these expressions worried the other states.

The government developed a Russian State Armament Program, during the period

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<sup>36</sup>Bellen, R. (2019), The impacts of climate change on Arctic security, *The Henry M. Jackson school of International Studies* [online], Available from: <https://jsis.washington.edu/news/the-impacts-of-climate-change-on-arctic-security/> (Accessed 5 October 2019).

2007-2015, which aimed to reconstruct all their northern naval capabilities by constructing new nuclear-powered submarines (both SSNs and SSBNs).

In 2011, approximately 67 per cent of Russia's 576 sea-based nuclear warheads are located on the Kola Peninsula.<sup>37</sup> During the previous period, Russia added in their military facilities 10 Search and Rescue bases, 13 airfields, 16 deep water naval bases and 10 radar stations. Russia has created a chain of scientific and military bases in the Arctic during the last years and this is due to the effects of climate change and the rising temperatures which allow the navigation and the shipment in the Arctic shipping routes. This country is objectively the superpower in the Arctic region and the mean of the military and strategic forces on the Kola Peninsula adds up a strong military dimension to this situation. The strategic importance of the Kola Peninsula, in which is based one of the world's largest fleets, can be understood under certain factors. Some parts of the Arctic have friendlier climate in comparison with other parts and so due to the Gulf Stream, the southern part of the Barents Sea is ice-free during all the year. So, the good weather conditions and the far northern location are two important factors.

For the period 2011-2020, Russia wants to stabilize and strengthen its naval and coastguard presence and in the list of acquisitions is 20 nuclear submarines, 600 new warplanes, 1000 new helicopters and 80 new naval surface vessels.

In the long-term, one of the top priorities of Russian Arctic strategy is to focus on the energy resources in the Barents Sea and in other parts of the region. The strategy will focus on bi and multilateral diplomacy concerning that other states or companies may want to take advantage of the oil, gas and other natural resources in the Arctic. The foreign policy of the country in the next years will mostly rely on the relationship of Russia with NATO and the plans and policies from other Arctic states too.

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<sup>37</sup>SAGE journals (2011), *Russia's Armed Forces and the Arctic : All quiet on the Northern Front*, 32(2), 267 [online] Available from: <https://www.tandfonline.com/doi/abs/10.1080/13523260.2011.590354> (Accessed 6 October 2019).

## CANADA

Canada is another country with intense military activities in the Arctic after the Cold War.

In 2002, there were some exercises of the Canadian forces in country's western part of the Arctic and it is repeated each year. In that period, the creation of an army training base in Resolute, Nunavut and a refueling installation in Nanisivik increased the Canadian military presence. Canada set up a deep-water port on Baffin Island at Nanisivik and in Resolute Bay it begun a military training center.

In 2005, we had the first Canadian defense policy, the Policy Declaration in which we can find that the Canadian security of its North is depending on USA support.

As the Arctic is a coastal and archipelagic region with clear maritime character, the Canadian Arctic security relates to the maritime security. Approximately 64% of Canada's coastline is in the Arctic. Canada's sovereignty over Arctic takes a wider definition. It combines environmental conservation, stewardship and resource operation. The Arctic Security Interdepartmental Working Group (ASIWG), determines sovereignty as the right and the capacity to practice exclusive jurisdiction within a geographical area. Speaking of the Canadian sovereignty on its Arctic waters, the confused thing is the historical use of ice-locked areas as they were part of an expansion of the land and, still, the sovereignty remains unresolved.

Due to climate change and ice melting, a lot of ice-bound areas will becoming more and more ice-free. This will lead to maritime traffic in the region and, consequently, will lead also to a dispute about the situation of their ownership. This emphasis on maritime trade routes needs also the Navy's existence in order to monitor the situation.

The most important issue about the Canadian sovereignty is the North West Passage and its status. There are seven shipping routes through this passage.

The Canadian side, on the one hand, is that this passage should be perceived as an internal stream in which Canada has legal title and full authority. On the other hand, the European Union, USA and Japan have a different view. They claim that this passage is an international waterway that connects the Arctic and Atlantic Oceans so it's free of both passage and transit.

The nature of this dispute between the international community and Canada, over the North West Passage, is connected with the applicability of the UNCLOS that forms the passage as an international route. Being an international waterway, all the nations around the world have the legal right to enter and transit this passage.

Canada needs to find out how to preserve those rights and control the route. Even though the AWPPA is the most powerful legislation that adjusts the actions of maritime traffic in the Arctic, it seems to be more than a reactive measure that gives Canada poor presence in the area.

Canada is willing to solve boundary issues according to the rules of international law.

### USA

The main goals for USA Arctic policy in the Arctic are the protection of the environment, national security, sustainability and cooperation among other states. In 2009, President Bush signed a National Security Presidential Directive on Arctic Region Policy and Obama continued this policy.

In the heart of the USA's policy in the Arctic is freedom of the seas and security too. The US Arctic region policy verifies the law of the sea convention and gives priority on multilateral collaboration in key areas and in the environmental protection.

The US never truly stopped its military activities in the Arctic, although there was a decline during the Cold War.

In 2009, the country developed three submarines to the Arctic and during the same year, the USA government announced its Arctic policy, according to which the Arctic was a top priority in country's political agenda.

**Norway's** military activities in the Arctic during the 1990s and 2000s was limited and in parallel collaboration with its ally, USA. The two countries created five frigates with radar-guided weapons to find and to extinguish potential future threats. Norway created also several very dynamic patrol ships and an armed Coast Guard vessel. The Norwegian Arctic strategy is very interesting as, on the one hand, they want a peaceful Arctic with cooperation among states on, on the other hand, they construct military forces in the area.

**Sweden**, just like Norway, created a series of very fast missile patrol ships. Finland is concerned about national air and how to patronize and strengthen the national air defense system.

**Denmark** in 2009 started to create an Arctic military regime and a Response Force and in the same year it charged by two ice-capable patrol ships. In general, Denmark has created a quite technologically advanced navy in the Arctic.

**Iceland** is a country with a small economy so objectively speaking, it can have a big military presence in the Arctic. During their economic crisis, Iceland was the only Arctic state that had a reduction in its equipment in the region.

### 5.1.3 Environmental Security Issues

The idea of the environmental security was created during the Post-Cold War era and until now the definition is still reforming.

The definition of the environmental security, as a subcategory of wider worries over human security, is enough complicated, and it is still developing.

In a general way, environmental security focuses on how the national security can be affected by the environmental changes and issues, how those issues could be a possible danger to human security and how those issues are also capable of creating dispute cases.

This security dimension focuses mainly in the environmental demotion, the pollution and on the environmental aspect of a conflict. Natural resources are a source which may arise violent conflicts and especially to nations that have overdependence on fossil fuels. Climate change is a threat multiplier for instability.

This environmental degradation can cause security risks and the target is to avoid or, at least, moderate practices that lead to this environmental harm. The environmental security is closely related to national security, through the correlation between the natural resources, the social status of the country and the economic situation.<sup>38</sup>

The effects of climate change in the Arctic and economic or military activities are in the list of the top concerns for international policymakers. Global climate change is a

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<sup>38</sup>Institute for Environmental Security (2014), *What is Environmental Security?* [online], Available from: [http://www.envirosecurity.org/activities/What\\_is\\_Environmental\\_Security.pdf](http://www.envirosecurity.org/activities/What_is_Environmental_Security.pdf) (Accessed 10 October 2019).



phenomenon that is inextricably linked with the discussions about the environmental security and sovereignty. As ice continues to melt, it is easier for ships to transit the Arctic Ocean and there is a much easier access to the seabed, an area with a lot of vulnerable resources. The effects of climate change will modified the Arctic Ocean from an ice-covered sea to a periodically open sea for the first time in more than 13 million years.<sup>39</sup>

In the Arctic studies have showed that the high northern latitudes are warming more than any other part of the world, affecting the heat exchange between land, air and water. There are many worries about the consequences on naval operations due to the retreat and thinning of the ice cover. The thawing of the permafrost will cause damage and problems on the existing onshore infrastructures and developments, including roads, constructions and pipelines.

Also, if the Arctic is less sea ice then this would increase the competition for natural resources, new territorial claims and more traffic in the Ocean, destroying even more this unique ecosystem.<sup>40</sup>

Apart from that, the Arctic cannot be regarded as one homogeneous region. There are different ice conditions or water depths, for example, on specific areas of the Arctic and technology may be proper in one area and inappropriate to another.<sup>41</sup> That way, technology and new techniques are forcing the limits of experience. All these factors are playing a part in creating a risk of a systems failure. An incident maybe causes catastrophic effects on the indigenous people and ecosystems too.

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<sup>39</sup>Stokke, O. (2011), Environmental security in the Arctic, *International Journal* [online], p. 837, Available from: <https://www.fni.no/getfile.php/131508-1467550287/Filer/Publikasjoner/OSS-IJ-2011.pdf> (Accessed 24 October 2019).

<sup>40</sup>CNA Corporation (2007), *National Security and the threat of climate change* [online], p.39, Available from: [https://www.cna.org/CNA\\_files/pdf/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf](https://www.cna.org/CNA_files/pdf/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf) (Accessed 13 October 2019).

<sup>41</sup>Arctic Council (2014), *Arctic Offshore Oil and Gas Guidelines: Systems Safety Management and Safety Culture* [online], Available from: [https://oarchive.arctic-coun-til.org/bitstream/handle/11374/1342/WG\\_PAME\\_OilGuide\\_Doc02\\_AOOGG\\_Systems\\_Safety\\_Management\\_and\\_Safety\\_Culture\\_Report\\_AC\\_SAO\\_CA02.pdf?sequence=3&isAllowed=y](https://oarchive.arctic-coun-til.org/bitstream/handle/11374/1342/WG_PAME_OilGuide_Doc02_AOOGG_Systems_Safety_Management_and_Safety_Culture_Report_AC_SAO_CA02.pdf?sequence=3&isAllowed=y) (Accessed 4 September 2019).

## HOW CAN ARCTIC WARMING AFFECT THE REST OF THE PLANET?

The dramatic changes in the Arctic have the dynamic to affect also the global climate. The surface will be warming more quick as the sun's energy reflected back to space reduces since snow and ice melt. As the ice melts and the regional rainfalls increases, this would possibly influence ocean streams in the North Atlantic.<sup>42</sup> Through the thawing of the permafrost, more greenhouse gases could be released. Arctic ecosystem is also a crucial component for the development and the evolution of global species, especially migratory species.

## OIL SPILLS

Oil spills create dramatic effects all over the world, especially for the environment and its ecosystems but also for the human health because of the toxic oil compounds that are collected in our food.

Oil in the Arctic comes from two mainly sources. The first one is drilling activities and the second is oil spills throughout transportation. Oil gas explorations could sometimes lead to accidents, and this could lead to massive oil spills in the Ocean. According to a report by National Research Council (NRC), USA is not yet prepared for an oil spill in the region.<sup>43</sup>

The possible threat of oil spills was started when in 2012 Shell unsuccessful managed to drill in the Kulluk drilling where there was the need to be rescued.

In 2017, the first commercial LNG oil tanker travelled across the Northern Sea

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<sup>42</sup> The International Polar Foundation (2000), *Facts on Arctic Climate Change* [online], Available from: <http://www.greenfacts.org/en/arctic-climate-change/foldout-arctic-climate-change.pdf> (Accessed 16 September 2019).

<sup>43</sup> Nunez, Chr. (2014), What happens when oil spills in the Arctic?, *National Geographic* [online], Available from: <https://www.nationalgeographic.com/news/energy/2014/04/140423-national-research-council-on-oil-spills-in-arctic/> (Accessed 3 September 2019).

Route without the aim of an icebreaker. The numbers of oil-powered ships that transit the Arctic Ocean are increasing and so does the risk of oil spills. The absence of waves creates also another problem as the oil does not scattered into small drops.

According to the Arctic Research at Aarhus University in Denmark, the low temperatures at near-zero affects the chemical characteristics and quality of the spilled oil and decelerates biological biodegradation.<sup>44</sup> For many scientists and biologists the oil spills in the Arctic Ocean may remain for a period of 50 or more years and the region, unfortunately, has small ability to respond.

Especially during the summer period, sunlight, on the one hand, can help the microbes to split oil atoms but , on the other hand, this could harm the marine creatures by making the oil mix more toxic and dangerous.

There is, also, absence of ships with suitable cleanup equipment and responders should travel across difficult areas in order to reach oil spills without high visibility and with very low temperatures.<sup>45</sup>

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<sup>44</sup>Husseini, T. (2018), *Oil spills in the ocean: why the Arctic is particularly vulnerable* [online], Available from: <https://www.offshore-technology.com/features/oil-spills-in-the-ocean-arctic/> (Accessed 6 September 2019).

<sup>45</sup> NOAA'S Response and Restoration Blog (2018), *Preparing to Respond to Oil Spills in the Arctic* [online], Available from: <https://toolkit.climate.gov/case-studies/preparing-respond-oil-spills-arctic> (Accessed 4 October 2019).

## *5.2 Threats and Challenges*

The changing of Arctic environment is leading states to competition due to the new possibilities of exploration and exploitation of oil and gas. The Arctic has an estimated 90 billion barrels of oil and about 1,669 trillion cubic feet of natural gas. This is 22 percent of the world's oil and natural gas reserves. Furthermore, the shipping routes are open for a major period of time.

Although a basic legal framework does exist about the zones outside the EEZs, new challenges may threaten the peace and stability of the region. Arctic military developments, bilateral territorial disputes, legal contests about the external limits of continental shelves, disputes concerning the legal state of the Northwest and Northern passage, environmental security issues like oil spills are some of these challenges. Practical issues concerning the extension of Exclusive Economic Zones and offshore exploration are still remaining unresolved.

### *DISPUTES ABOUT THE LEGAL STATE OF PASSAGES*

The dispute between the USA and Canada over the Northwest Passage was counting about 50 years. The two countries had disagreed for such a long period on who has truly jurisdiction over the Northwest Passage.

This passage is a series of routes inside the waters of the Canadian Arctic Archipelago, around the Canadian islands between Alaska and Greenland. According to Canada, this passage is part of its historic internal waters.

The legal status of the Northwest Passage was under the table and Canada insisted that is part of its internal waters, according to the UNCLOS.

In 2009, the Canadian government in order to point out their opinion gave to the passage another name, called the "Canadian Northwest Passage".<sup>46</sup>

On the other side, the US has the position that the passage is an international strait, part of high seas, and any foreign vessel can enter and travel this passage. China has also the same opinion.

In 1988, the creation of Canada-United States Agreement on Arctic Cooperation

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<sup>46</sup> Burke, D. (2018), The Northwest Passage Dispute, Oxford Research Group [online], Available from: <https://www.oxfordresearchgroup.org.uk/blog/the-northwest-passage-dispute> (Accessed 10 October 2019).

(ACA) wasn't enough for the resolution of this dispute. An Arctic expert and professor of international law once said that this agreement allowed the two countries to agree to disagree.<sup>47</sup>

Due to the rapid changes in the Arctic and the effects of global warming, this issue is no longer a bilateral subject as the international interest continues to increase and an agreement may be not enough. This passage is now open not only for icebreakers but for cruise and cargo ships.

### ARCTIC MILITARY DEVELOPMENTS

Russia after the Cold War had a more decisive foreign policy. The Russian government wanted to develop and to reconstruct its military facilities and capabilities in the region and extend their operations for border control.<sup>48</sup>

One threat perception is military exercises as they may create misunderstandings and under such a scenario, this could constitute serious threats.

Generally speaking, the presence of the Russian military in the High North could be considered yet as a defensive method as its base and military assets were depredated during the 1900s.

Due to climate change, a big part of Russia's northern coastline is being exposure so in order to control its border, they increase military protection.

As Russia's military resources developed, especially Anti-air assets, this would be a threat for NATO's Sea Lines of Communication and reinforcement procedures.

Another challenge could possibly be the growing role of China in the evolution of its Polar Silk Road which has mainly an economic nature but also, especially if China and Russia develop their partnership, could have security results too.

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<sup>47</sup> Beeler, C. (2017), Who controls the Northwest Passage? It's up for debate, *PRI* [online], Available from: <https://www.pri.org/stories/2017-09-04/who-controls-northwest-passage-its-debate> (Accessed 10 October 2019).

<sup>48</sup> Van den Togt, T. (2019), The EU, Russia and the Future of European Security, *EUREN brief* [online], Available from: [http://188.127.251.150/wp-content/euinrussiapdf/EUREN\\_Brief\\_05.pdf](http://188.127.251.150/wp-content/euinrussiapdf/EUREN_Brief_05.pdf) (Accessed 12 October 2019).

### *5.3. Desire for cooperation*

Arctic is a region that is deeply peaceful and stable through all these years. Nearly all states have showed respect to the principles of international law with the same interest which is expressed through cooperation between them. Although some countries have showed military or other ambitions in the region, a comeback to Cold War levels is nonviable.

Nevertheless, in order to prevent future conflicts, Arctic states should move in a cooperative manner.

Until 2005, all governments had knowledge about the rapid effects of climate change in the Arctic and the possible opportunities coming up. Most of the policy statements were focused attention on the environmental security and the protection of this unique sensitive ecosystem. As the international activity in the Arctic was rising, Canada and USA were claimed that one of their top priorities of their policy was the sustainable development of the Arctic.

In order to explain their willing to extend their control, over land and waters too, Canada USA and Russia also started to point out the emerging need to protect the environment in the Arctic.

In 2008, the five coastal Arctic States (Canada, Norway, Denmark, Russia and the USA) issued a statement, called Illulissat Declaration, in order to set territorial claims. This Declaration clarifies that any disputes over new boundaries would solved in a peaceful and cooperative manner and in accordance with the United Nations Convention on the Law of the Sea (UNCLOS), which is the main legal body for maritime border delimitation. According to its rules, maritime countries' EEZs extend 200 nautical miles from their coasts. The CLCS deals with continental shelf claims over this zone, up to a maximum of 350 nautical miles

One big effort in order to promote and boost cooperation among states was the ending to a long-standing border dispute between Russia and Norway over the Barents Sea that was delimited in 2010, which got the name from diplomats as a type of Arctic diplomacy. Russia's Arctic strategy also aims to international cooperation and emphasizes on the agreements with other states in order to secure their regional natural resources.

Additionally, in the central Ocean there is a worry about the ship safety and fisheries operations and management. For this reason alone, the USA created a search and rescue treaty which involved all Arctic states and Russia too. According to this treaty, coastal states zones are specified for search and rescue that expand within international waters.

The important issue is no matter how big or small a country is, the states of the region all these years have developed Arctic policy agreements under the good terms of cooperation and conflict resolution.<sup>49</sup> The Arctic is doubtful to be a security flashpoint in the near future as multilateral negotiations have successfully managed territorial claims.<sup>50</sup>

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<sup>49</sup> Stokke, O. (2011), Environmental security in the Arctic, *International Journal* [online], Available from: <https://www.fni.no/getfile.php/131508-1467550287/Filer/Publikasjoner/OSS-IJ-2011.pdf> (Accessed 24 October 2019).

<sup>50</sup> Carnegie Endowment for International peace (2009), *Environmental security must be top priority in Arctic* [online], Available from: <https://carnegieendowment.org/2009/06/24/environmental-security-must-be-top-priority-in-arctic-pub-23315> (Accessed 13 October 2019).

## *6. Conclusions*

This thesis aimed to represent the new changing environment in the Arctic region due to the rapid effects of global climate change. Those effects are stronger and more intense in this area of the planet and ice continues to melt in an accelerated degree. Then, we try to connect those rapid changes with the new challenges and threats the states could possibly face in the near future.

The Arctic is part of a complex system of political, social and economic dynamics linking actors inside and outside the region. As climate change affects in such a tremendous way the Arctic, new opportunities but also threats are generated.

To begin with, 95% of the oldest and thickest sea ice has disappeared since 1984 in the Arctic. Those negative effects of global climate change are in the top list of priorities for Arctic States and international policymakers too as this warming effect will also influence the global climate and the release of even more greenhouse gases.

As we can assume from this paper, climate change is completely linked with environmental and international security too. Those challenges are being related to military developments, territorial disputes and legal conflicts and, of course, environmental security issues who threaten balances in the area.

As ice melts so fast and the Arctic governance has to face a series of threats and challenges. Shipping traffic in the Arctic Ocean will continue to increase as the passages are most of the time open for navigation and cruising, creating new territorial claims. This will cause undoubtedly the production of more carbon emissions in the region as so many ships have the opportunity to enter Polar Code. That will also encumber this one incomparable ecosystem. As permafrost melts, new energy resources are discovered. From the one hand this will attract a lot of oil companies in order to start exploitations and explorations in the area but, on the other hand, the competition among states (Arctic and non-Arctic ones) and other players will also be expanded.

Through examination we concluded that although those challenges must be faced, the possibility of a future conflict in the Arctic is quite low. Historically, the region is strongly peaceful and stable with respect among the states in accordance with the principles of international law. The big players in the region want a stable and steady Arctic in order to promote and secure their own interests and goals.



We can surely claim that one of the top players in the Arctic, Russia, will continue to have the intention to protect the Arctic, as it has the biggest number of security forces there. One of the top priorities of USA's policy in the near future will also be the protection of the environment and the promotion of sustainability and cooperation between states and organizations.

Through all these years, there is a strong motive of cooperation among all states and many of them have developed strong and stable Arctic policy agreements.

The Arctic, despite the new challenges, is surely going to remain a security flashpoint. All involving states in order to secure and promote their own interests and the protection of the environment, will certainly choose cooperative solutions rather than conflicts.

Will this scene continue to maintain its peaceful character in the distant future?

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