Arctic in the Globalization, the final border

To drill or not to drill, that is the question

Nicolas Marvaud

Table of content

I. Introduction

The book "*The Arctic, the new border*"[1] resumes perfectly how the Arctic appears to the human being currently. Appearing as a white wide and silent desert, with a limited fauna and flora, some indigenous people and Scientifics deployed there to study and discover the secret of this place, the Arctic is still an unknown place for us. An area that our imagination built through the images the documentaries and books transmitted to us. The Arctic, the pack ice and the polar bears even became the symbols of climate change all around the world as a result of the ice melting and its worldwide impact.

Nonetheless, behind our imaginary of the Arctic, there is also a reality which appeared to some governments, companies, Scientifics and international organizations. The reality of the Arctic is that the area is a wonderful tank of resources: fishes, arable land, new path for international shipping trade and the most important, fossil resources[2]. Because the development of our society is based on the transformation of fossil resources in thermic and mechanical energy, those resources are stoking the lusts of a wide range of political and economic actors[3]. In consequence, there is a need for the management of those resources in the Arctic and a competition to control them may appears.

In fact, only one thing make this exploration and exploitation still difficult: the pack ice. But this natural border is retreating every year and should disappear before 2050[4]. Then the governments and energy companies will be able to access the resources located in the continental shelf in the Arctic.

[1] Michel Foucher, *L'Arctique: la nouvelle frontière* (CNRS, 2014).
[2] World Energy Council, 'World Energy Resources: Annexes', 2013, https://www.worldenergy.org/wp-content/uploads/2013/09/WER_2013_Annexes.pdf.
[3] Max Roser, 'Economic Growth', *Our World in Data*, 24 November 2013, https://ourworldindata.org/economic-growth.
[4] Brandon Luedtke, 'An Ice-Free Arctic Ocean: History, Science, and Scepticism', *Polar Record* 51, no. 2 (March 2015): 130–39, https://doi.org/10.1017/S0032247413000636.

In consequences, two visions are countering each other: an economic development following an ecological economics approach and the preservation of the environment according to political ecology. We're facing with a global ethical paradox:

According to ecological economics and political ecology, how arctic exploitation resources can go hand in hand with the preservation of the Arctic environment?

II. Methodology

1. Research Strategy

First of all, this research has been conducted in order to stick with the arctic specialty class followed during the first year of Master at Aalborg University. An inductive method has been developed to conduct this research. Starting from the observation of facts and elements in other researches and the actuality, an analysis is then applied to determine if those facts are susceptible to let emerge a generalization of the assumed idea at the beginning.

To conduct this research, the data collective is both qualitative and quantitative and is collected from different academic literature, international organizations, as non-governmental organizations, government and press. Then, to analyze those data, different theories will be used to test the different elements identified and to determine the generalization which can be made of it. The scope of this research is focusing on Economical Economics and secondly on Political Ecology. From that point, the research will be limited to those aspects of the fossil resources exploitation in the Arctic. A particular interest has been focused on the fossil resources because of the link it exists with climate change and the others resources as the fishing one, the shipping path or even the on shore exploration have not been chosen for being studied. Nevertheless, some mentions may appears in order to give a better understanding to the lectors.

2. Limitation of Data

If the choice has been made to prefer English sources to conduct this research, the ability of the redactor to speak French and its attention on the French literature on this topic may occurs the presence of French sources in this research. Because of the relative rise of interest on this topic, the data collected is relatively recent and not exceed the period before 2000.

About the Arctic definitions, it has been decided to limit the research to the Arctic Ocean. If some indications about a wider acceptation of Arctic definitions, it's to give a better understanding of the complexity of the Arctic reality.

3. Research Outlines

Before starting the analysis, different elements of context have been presented and described in order to give to the lector all the key lectures to follow easily the analysis and understand it correctly. In the analysis, those elements will be considered as known and they will not be explained again.

The analysis is divided in two section. The first one is focusing on the link between the exploitation of the fossil arctic resources with climate change while the second section is focusing on the competition between the different actors in the Arctic area to access those resources.

The discussion part is focusing on different political ecology theories. It is assumed that the different states mentioned in this research are both looking for environmental security because of their signature of the Paris Agreement, as for energetic security since their activities of exploration and exploitation in the Arctic.

4. Contextual limitations

Because of the actuality of this topic, it may appear a lack of distance with the events which are occurring on this field. For the second part of analysis, because of its political aspect, the elements presented may have evolved between the redaction and the lecture of the paper or

even later in the following years. In order to prevent any misunderstanding, the author invites the lectors to read it in its context.

About the Paris Agreement, all the countries signed it and even if the United States announced there retreat of this agreement, it will not be effective before November 4th, 2020.

III. Context

1. The Arctic

From the Greek *arktikos* which means: "near the Bear, northern", the term arctic refers currently to the area surrounding the North Pole[5]. Nevertheless, several boundaries for the arctic have been implemented, following different criteria.

One of the limitations of the region is symbolized by the Arctic circle, an imaginary circle line on the 66° 34N latitude above which the sun doesn't rise on the winter solstice and doesn't set on the summer's one[6]. From another definition, the arctic includes the area north the tree line which means the area where trees are not able to grow up because of the frozen landscape[7]. Only shrubs and lichens are present in this area. Finally, according to the last definition, the arctic refers also to the area where the temperature in summer never rises 10°C (50° Fahrenheit)[8]. (See Annex 1)

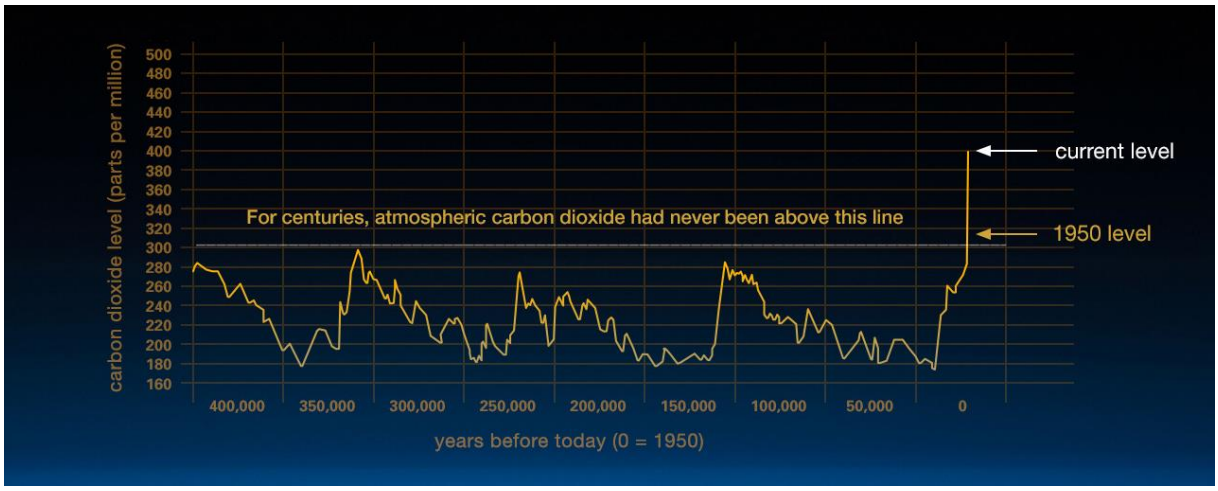
Those three definitions, superimposed, are offering a consensual area which includes some territory parts of 8 states: Russia, Finland, Sweden, Norway, Denmark (Greenland), Island, Canada and United States.

Due to the global warming, the definition of the arctic will may evolve in the future, because of its dependence on the environment.

[5] 'Henry George Liddell, Robert Scott, A Greek-English Lexicon, Ἀρκτικός', accessed 16 May 2018, http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.04.0057%3Aentry%3D%2315193&redirect=true.
[6] 'What Is the Arctic? | National Snow and Ice Data Center', accessed 16 May 2018, https://nsidc.org/cryosphere/arctic-meteorology/arctic.html.
[7] 'What Is the Arctic? | National Snow and Ice Data Center'.
[8] 'What Is the Arctic? | National Snow and Ice Data Center'.

2. Global warming

Global warming refers to the observed rising of the temperatures within the Earth's climate. The different studies of the ice cores by scientists as NASA permit to assert the existence of variations in the past. In the last 650.000 last years, seven cycles of global warming and glaciation have been observed due to the modification of the Earth's orbit and the accentuation of the sunlight on earth[9]. Today, the utilization of the Global warming term refers to climate change. The ice cores studies demonstrate the changes of the greenhouse gas in the atmosphere and the unprecedented level reached today. In 2018, the level of carbon dioxide reaches 400 parts per million while it never exceeded 300 in the last 650,000 past years[10].



The effect of the dioxide carbon on the climate is related to the greenhouse effects that it occurs. With methane, nitrous oxide and Chlorofluorocarbons, dioxide carbon prevents the heat to escape from the atmosphere. Acting like a blanket, those gases are keeping on Earth the heat from the sun[11]. It's called "greenhouse effect" and if occurs a rising of temperatures on Earth.

[9] 'Climate Change Evidence: How Do We Know?', Climate Change: Vital Signs of the Planet, accessed 14 May 2018, https://climate.nasa.gov/evidence.
[10] 'Climate Change Evidence'.
[11] 'Climate Change Causes: A Blanket around the Earth', Climate Change: Vital Signs of the Planet, accessed 14 May 2018, https://climate.nasa.gov/causes.

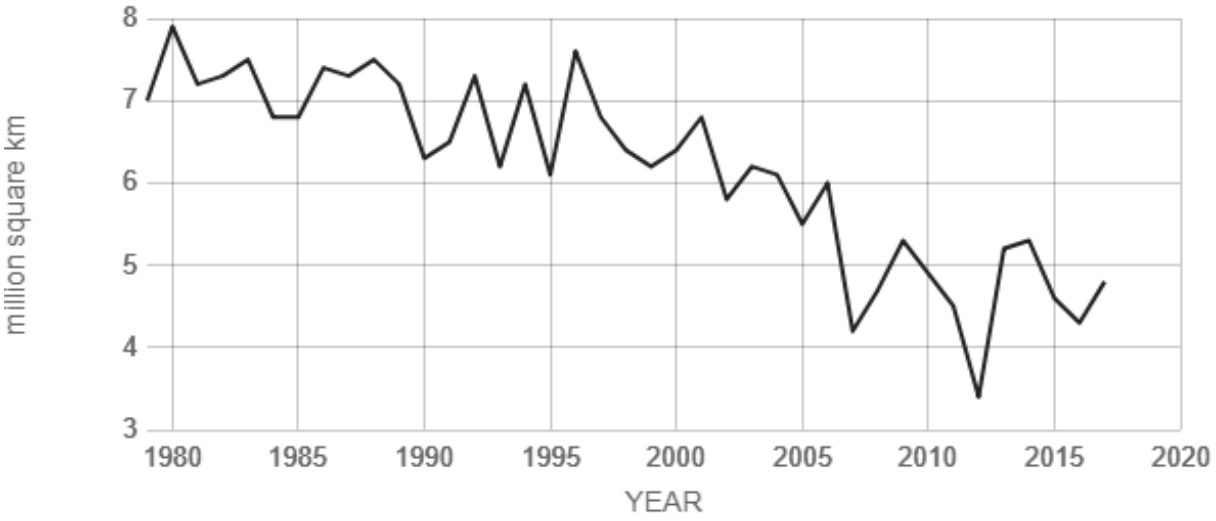
Created in 1988, the Intergovernmental Panel on Climate Change (IPCC), dedicated to the United Nations, oversees the scientific evaluation of climate change and its economic and political impact. In its fifth assessment report, more than 1.300 scientists affirmed with more than 95% of probability that the rising of the dioxide carbon level and other greenhouse effects gases in the atmosphere are the consequence of the human activity[12]. This augmentation is principally due to the burning of fossils (coal, fuel) since the middle of the 19th century[13]. Thus, the IPCC assumes that the human activity is responsible, with more than 95% of probability, of the global warming and thus to the climate change which occurs on earth currently[14].

With a rising of the temperatures in the Earth's atmosphere, the environment is facing to several modifications. Those modifications are inter-related according to a systemic approach and include the ocean warming, its acidification, the glacial retreat, the frost-free season, the shrinking ice sheets and the declining arctic sea ice in the case which concerns this paper[15]. In the case of the Arctic, the region is warming more rapidly than the global trend[16]. Since 1950, the world's temperature raised up of 0,6°C although the arctic one raised up of 2,1°C[17]. In February 2018, the temperature reached 6,2°C in the north of Greenland, 30°C more than the usual measures[18].

The most visual effect of Global warming in the Arctic is the melt of the ice pack. Since 1979, the NASA studied the extent of the arctic ice pack. At that time, the surface area of the September arctic ice pack was reaching 7 million square kilometers while in 2017, it

[12] R. K. Pachauri, Leo Mayer, and Intergovernmental Panel on Climate Change, eds., *Climate Change 2014: Synthesis Report* (Geneva, Switzerland: Intergovernmental Panel on Climate Change, 2015).
[13] 'Climate Change Causes'.
[14] 'Climate Change Causes'.
[15] Randal Jackson, 'Global Climate Change: Effects', Climate Change: Vital Signs of the Planet, accessed 14 May 2018, https://climate.nasa.gov/effects.
[16] Pachauri, Mayer, and Intergovernmental Panel on Climate Change, *Climate Change 2014*. Page 10
[17] Isabelle Autissier and Erik Orsenna, *Passer par le Nord: la nouvelle route maritime*, Collection Folio 6134 (Paris: Gallimard, 2014). Page 253
[18] 'Pic de « Douceur » Au Pôle Nord', accessed 15 May 2018, http://www.lemonde.fr/climat/article/2018/02/27/pic-de-chaleur-en-arctique-avec-des-temperatures-30-degres-au-dessus-des-normales-saisonnieres_5263373_1652612.html.

reached 4,8 million square kilometers with a record of 3,4 million square kilometers in 2012[19]. Currently, the rate of the declining September arctic ice pack is 13,2% per decade, approximately the same one than during the 1981-2010 period[20].



Source: climate.nasa.gov

If the extent of the arctic ice pack is one of the most visible consequences of global warming in the region but also at a global level, there are other consequences which are impacting the area, paving the way to new resources.

3. Natural resources in the Arctic

The Arctic area is considered as a natural resources tank. Those resources include oils, fuels, living resources but also new paths for ships due to the lack of pack ice. In its report "Resources to Reserves" published in 2013, the International Energy Agency (IEA) estimates that around 30% of the natural gases reserves are in the Arctic area[21]. The United States geological survey

[19] NASA Global Climate Change, 'Arctic Sea Ice Minimum | NASA Global Climate Change', Climate Change: Vital Signs of the Planet, accessed 16 May 2018, https://climate.nasa.gov/vital-signs/arctic-sea-ice.
[20] Change.
[21] 'Resources2013.Pdf', accessed 15 May 2018, https://www.iea.org/publications/freepublications/publication/Resources2013.pdf. Page 135

estimated in 2008 that 22% of the oil and natural gases could be located in the Arctic region[22]. Those resources are inequitably located according to the IEA report.

Table 1: Distribution of undiscovered oil accumulations[23]

Distribution of undiscovered oil accumulations	
Location	**Estimations (in billions of barrels)**
South Barents	9.4
Danmarkshavn	7.6
NW Greenland	4.9
Yenisey-Khatanga	5.3
Canning-Mackenzie	6.4
Alaska Platform	28

Table 2: Distribution of undiscovered natural gas resources[24]

Distribution of undiscovered natural gas resources	
Location	**Estimations (in billions cubic meters)**
South Kara	18 400
South Barents	9 000
North Barents	6 300
Alaska Platform	3 500

[22] 'Strategic Importance of the Arctic in U.S. Policy', accessed 15 May 2018, https://fas.org/irp/congress/2009_hr/arctic.pdf.
[23] International Energy Agency, ed., *Resources to Reserves 2013: Oil, Gas and Coal Technologies for the Energy Markets of the Future* (Paris: OECD, 2013). Page 136
[24] International Energy Agency. Page 136

The French Institute of Petroleum (IFP) estimated in 2017 the discovered oil reserves in the Arctic to 90 billions of barrels (13% of the world's reserves) and the natural gas ones to 318 billions of barrel (petrol equivalent), reprensenting 30% of the world's reserves[25]. Those estimations are confirmed by the russian geographic society[26].

Hydrocarbons are not the only natural resources located in the Arctic, there is also an important tank of halieutic resources. Since the 18th century, english, neerlander and french fishermens went to the north sea and the Terre Neuve arounding to fish cod. Because of overfishing there, trawlers migrated notably to the Barents sea where are fished 5% of the world's fisheries[27]. During the summer, the meeting of the Gulf stream ocean current with the cold waters of the Arctic ocean and the surface water flow is offering a mixing of the water, bringing plentiful nutriments[28]. Thus, there is an augmentation of the krill, base of the halieutic food chain, in the arctic area, which migrates to the north, following the retreat of the ice pack[29]. In consequences, we assist to global migration of the halieutic resources in the Arctic during the summer.

In addition, the arctic is also offering new paths for the international commerce. The North-East way, as the North west one are permitting to ships from Asia to reach Europe faster than through the Suez Canal. 20 500 kilometers separate Tokyo from Rotterdam through the Suez canal when it's only 14 500 through the North East way and 16 500 by the North West one[30]. If the distance is not the only criteria of determination of a way for an armateur, it appears

[25] Pierre Breteau, 'Et si les réserves pétrolières de l'Arctique étaient moins importantes que l'on ne le pensait', 9 September 2017, Le monde edition, http://www.lemonde.fr/les-decodeurs/visuel/2017/09/09/et-si-les-reserves-petrolieres-de-l-arctique-etaient-moins-importantes-que-l-on-ne-le-pensait_5183450_4355770.html.
[26] 'Natural Resources', accessed 15 May 2018, http://arctic.ru/resources/.
[27] Autissier and Orsenna, *Passer par le Nord*. Page 188
[28] 'L'océan Arctique : Physiographie, Circulation Océanique, Évolution de La Banquise, Intérêts Géostratégiques et Perspectives Environnementales - Recherches Arctiques', accessed 15 May 2018, http://recherchespolaires.inist.fr/?L-ocean-Arctique-physiographie.
[29] 'L'océan Arctique : Physiographie, Circulation Océanique, Évolution de La Banquise, Intérêts Géostratégiques et Perspectives Environnementales - Recherches Arctiques'.
[30] Pierre Breteau, 'Et si les réserves pétrolières de l'Arctique étaient moins importantes que l'on ne le pensait'.

as an advantage because of saving petroleum and increasing the frequency of its trips. It's an important element in the conduction of the international commerce.

The arctic is an area of massive resources which appears as a new border symbolized by the ice pack and the extreme climate conditions. Both are nowadays evolving.

4. Legal framework in the arctic

The principle of the freedom of the seas has been developed by Grotius in the 17th century in its book "*mare liberum*"[31]. In this book, Hugo Grotius affirm the right for every nation to travel to every other nation, which means that no one can be constrained by another nation on the seas and the oceans[32]. This principle comes from the idea that contrary to the land, the sea is not susceptible of occupation and is so considered as a common property[33].

After the First World War, this principle has been reaffirmed by the President Wilson in its Fourteen points' speech in front of the congress: "Absolute freedom of navigation upon the seas, outside territorial waters, alike in peace and in war, except as the seas may be closed in whole or in part by international action"[34]. This principle is still part of the international law but the improvement of the technology increased the interactions and the vindications between states in the seas and the oceans for the resources. Thus, this principle was not enough to regulate the international relations in those areas. That's why, in 1958, the Geneva conference codified for the first time the law of the sea with the implementation of four conventions: The

[31] Hugo Grotius et al., *The Free Sea*, Natural Law and Enlightenment Classics (Indianapolis, Ind: Liberty Fund, 2004).
[32] Grotius et al. Page 7
[33] Grotius et al. Page 28
[34] Woodrow Wilson, 'Fourteen Points', in *Address to Congress*, vol. 8, 1918, 33–36.

Convention on the Territorial Sea and the Contiguous Zone; the convention on the High Seas; the Convention on Fishing and Conservation of the Living Resources of the High Seas and the Convention on the Continental Shelf[35]. Known as the United Nations Convention on the Law of the Sea (UNCLOS), this first conference will be followed by two others whose the last one: UNCLOS III will last until 1982. At that time, the final version is adopted on December 10th in Montego Bay (Jamaica) and entry into force in 1994, November 16th [36]. The principle of the freedom of the seas is normalized in the article 87 of the Convention.

Because the Arctic is not composed of any land but only seas and ice pack, it's by definition, the Montego Bay's Convention which is the legal framework of the area. In consequences, the principle of the freedom of the seas still prevails in the Arctic, the ice pack and the extreme climate conditions preventing any transit or sovereign vindication at that time.

The Montego Bay Convention delimits different areas and elements on the ones a state is sovereign:

- Internal waters:

The internal waters concern all the waters located before the baseline. The coastal state is sovereign and can implement laws which implies that foreign vessels can't enter in this area without its authorization.[37]

[35] '1958 Geneva Conventions on the Law of the Sea - Main Page', accessed 15 May 2018, http://legal.un.org/avl/ha/gclos/gclos.html.
[36] 'United Nations Convention on the Law of the Sea - Main Page', accessed 15 May 2018, http://legal.un.org/avl/ha/uncls/uncls.html.
[37] Tullio Treves, 'United Nations Convention on the Law of the Sea', *United Nations Audiovisual Library of International Law (Http://Untreaty. Un. Org/Cod/Avl/Pdf/Ha/Uncls/Uncls_e. Pdf)*, 2008. Article 8

- Territorial waters:

The Territorial waters include the area from the baseline out to 12 nautical miles. The coastal state is sovereign and can implement laws and extract any resource. Innocent passage which means not prejudicial to the peace, good order or security, is allowed in territorial waters.[38]

- Contiguous zone:

This zone includes the next 12 nautical miles beyond the territorial waters. The sovereignty of the coastal state and its ability to enforce laws is reduced to four areas: tax, immigration, pollution and customs if a damage or a violation started in or reached the territorial waters.[39]

- Exclusive Economic Zone (EEZ)

The Exclusive Economic Zone extends from the baseline to 200 nautical miles. The coastal state has exclusive exploitation rights over all the natural resources (the continental shelf and the living resources present in the column of water).[40]

- Continental shelf:

The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin. Nevertheless, it can't never exceed 350 nautical miles from the baseline. The coastal state has the right to exploit the natural resources in the continental shelf and its living resources attached to it.[41]

[38] Treves. Article 4 and 17.
[39] Treves. Article 33
[40] Treves. Part V (Article 55 – 75)
[41] Treves. Article 76 and 77

The case of Antarctica:

Contrary to the Arctic which is an ocean with an ice pack, the Antarctica is a continent with a continental shelf emerging up from the ocean. From this, the Antarctica can't be under the yoke of the Montego Bay convention. Thus, the twelve countries operating scientific researches decided to preserve the continent and to limit its exploration to scientific activities within an international cooperation[42]. Nevertheless, if through this treaty the parties engaged themselves to participate to peaceful activities, the treaty doesn't prevent them to exploit the resources of the continent. To prevent this, MM. Robert Hawke, Australian's Prime Minister; Jacques-Yves Cousteau, commandant and Michel Rocard, French Prime Minister worked out to add a protocol protecting the Antarctica from resources exploitation[43]. On October 4th, 1991, has been signed in Madrid the Protocol on Environmental Protection to the Antarctic Treaty which entered into force in 1998 and which designates the continent as "*"natural reserve, devoted to peace and science"*[44]. In addition, the protocol, in its article 7, prevents until 2048 all the activities related to the mineral exploitation in Antarctica[45].

5. Cold War

Contrary to the Antarctica, the Arctic region didn't benefit of a specific treaty to preserve the area. In consequences, by default, it's the provisions of the Montego Bay Convention which apply to all the activities which took place in the Arctic Ocean[46].

[42] David A. Colson, 'The United States Position on Antarctica', *Cornell Int'l LJ* 19 (1986): 291. Preamble
[43] Autissier and Orsenna, *Passer par le Nord*. Page 274
[44] Samual KN Blay, 'New Trends in the Protection of the Antarctic Environment: The 1991 Madrid Protocol', *American Journal of International Law* 86, no. 2 (1992): 377–399. Article 2
[45] 'ATS - Environment Protocol', accessed 15 May 2018, https://www.ats.aq/e/ep.htm.
[46] Treves, 'United Nations Convention on the Law of the Sea'.

This lack of normalization didn't appear as an issue until the 20th century because of the lack of activities in this region. After the Second World War and the victory on the Germany, several topics of discord are intensifying the tensions between the United States and the Soviet Union. In July 1945 took place the Potsdam conference during the one serious discords appeared. Those discords concern their respective national security, the future of Germany, Poland and Eastern Europe as well as the world economic model[47]. Thus, according to Alexis de Tocqueville in his book: "*De la démocratie en Amérique*" (Democracy in America), United States and The Federation of Russia will engage themselves in a new form of conflict[48]. This conflict will be named "Cold War" by George Orwell because of the lack of direct confrontation[49]. Raymond Aron defined this conflict with the formula: "an impossible peace, an unlikely war"[50].

In this conflict, the Arctic played a central role because of its location. In fact, the shortest distance between the two world's leaders is through the arctic. If a terrestrial invasion is unlikely, the missile's trajectory is likely. During the Second World War, after the invasion of Denmark by Germans, Henrik Kauffmann, Danish Ambassador to the United States, signed in the name of the king, a treaty with the United States allowing them to operate military base in Greenland[51]. After the Second World War, Denmark joined the North Atlantic Treaty Organization (NATO) and pursued the allowance for the United States to operate the Thule base, which still exist currently. During the cold war, the Thule airbase was highly strategic

[47] Iain McLean, *The Concise Oxford Dictionary of Politics* (Oxford University Press, 1996). The "Cold War" chapter
[48] Alexis de Tocqueville, *De la démocratie en Amérique. 2:* ..., Collection Garnier-Flammarion brochée 354 (Paris: Garnier-Flammarion, 1981).
[49] O. Dag, 'George Orwell: You and the Atomic Bomb', accessed 16 May 2018, http://orwell.ru/library/articles/ABomb/english/e_abomb.
[50] Raymond Aron and Christian Bachelier, *Une Histoire Du Vingtième Siècle* (Paris: Plon, 1996). Page 255
[51] Bo Lidegaard, *I kongens navn: Henrik Kauffmann i dansk diplomati 1919-1958* (Kbh.: Samleren, 2004).

permitting the American bomber aircrafts to reach 85% of the Soviet Union territory. In 1957, the Soviet Union succeed in launching in space a satellite: sputnik[52]. By this launch the Soviet Union demonstrated its ability to deploy intercontinental missiles, able to strike the United States. In parallel to the nuclear arms race, the risk rose up quickly and obliged the United States to develop a nuclear dissuasion's program. Thanks to its position, Greenland appeared as the most efficient location for this kind of program. The Iceworm project has been launched in 1960[53]. This project consists in the constructions of thousand kilometers of tunnels and 60 missiles launchers under the ice sheet[54]. With the possibility to reach 80% of the Soviet Union territory, the natural barrier that constitutes the ice sheet and the deployment at distance from Europe and its reserves, the project received the favors of Washington[55]. The construction of Camp Century, a portative nuclear plant and the deployment of offensive missiles was bringing some difficulties too which caused the stop of the project in 1966[56]. The most important limit was the unsuccessful management of the ice movement and the hostile conditions of life.

Another program, the DEW line has been developed in Canada by the United States and has been extended in Greenland in 1958 under the name DYE[57]. In total, 62 radar stations were scanning the arctic sky to detect potential soviet air strikes on the North American continent[58].

The United States was not the only one to understand the strategic position of the arctic in the conflict opposing them with the Soviet Union. The other world leader developed also in his archipelago, military bases and operations to prevent attacks from the United States through the Arctic.

[52] Nicolas Dubreuil and Michel Ismaël Khelifa, *Mystères polaires* (Paris: Points, 2015).
[53] Dubreuil and Khelifa.
[54] Dubreuil and Khelifa.
[55] Dubreuil and Khelifa.
[56] Dubreuil and Khelifa.
[57] Dubreuil and Khelifa.
[58] Dubreuil and Khelifa.

6. Arctic Council

In 1986, Ronald Reagan and its homologue, Mikhaïl Gorbatchev met in Reykjavik, in the Höfoï's house[59]. In parallel of the global warming, the relations between the Soviet Union and the United States were also warming up. From that meeting, started the thaw of the Cold War which started in the Arctic. On December 1st, 1987, Mikhaïl Gorbatchev offered, in a speech in Mourmansk, to make Arctic an area of peace, denuclearized, where the scientific and economic cooperation should prevail[60]. The collapse of the Soviet Union and the slowness of diplomacy will delay the implementation of this achievement. Under the initiative of the Finland's government, several meetings with the circumpolar states ministers took place and leaded to an agreement in 1991 on the environment protection in the Arctic[61]. In 1996, the declaration of Ottawa implemented the Arctic Council: a cooperation forum between the circumpolar states[62].

Involving the indigenous arctic communities with the participation of six representing associations, the eight circumpolar states (The Federation of Russia, Finland, Sweden, Norway, Denmark, Island, Canada and United States) are participating in meetings and group works under a rotating chairmanship[63]. The working group's topics concern sustainable development, protection of the arctic marine environment, the emergency prevention, the conservation of arctic flora and fauna, the arctic monitoring program and the arctic contaminants one[64]. In addition to those participants, some observers' states have been admitted in the organization. Their diversity shows the interest that the world has on it. Those states are: Germany, China,

[59] Autissier and Orsenna, *Passer par le Nord*.
[60] Autissier and Orsenna.
[61] 'Arctic Council - Arctic Council', accessed 23 May 2018, http://www.arctic-council.org/index.php/en/about-us/arctic-council.
[62] Autissier and Orsenna, *Passer par le Nord*.
[63] 'Arctic Council - Arctic Council'.
[64] 'Arctic Council - Arctic Council'.

South Korea, Spain, France, India, Italy, United Kingdom, Japan, Poland, Netherlands and Singapore.

In consequence, the Arctic Council is a forum where cooperation topics can be discussed and engagement taken. Nevertheless, it appears that some issues are avoided as the Russian militarization of the Arctic, the exploration and the exploitation of new oil fields, the fishing resources management or also the territorial vindications under the Montego Bay convention.

IV. Theory

1. Ecological Economics

In the end of the 18th century, Thomas Robert Malthus, an English clerical published an *Essay on the principle of Population*[65]. In this essay, he declared that: "The increase of population is necessarily limited by the means of subsistence"[66] to which John Stuart Mill responded in offering the concept of steady-state economy. This concept presents an economy as made of a constant capital and a constant population leading to an ineluctable stationary state[67]. From that point of view, Heman Daly added an ecological analysis, in other words, an ecological capital, to the steady state economy concept, laying the foundation of the Ecological Economics[68]. Then developed by Jan Otto Andersson and Ralf Erikson in their book *Elements of Ecological Economics*[69], this concept can be defined as a transdisciplinary field of academic research that addresses the interdependence and co-evolution of human economies and ecosystems over time and space[70]. This means that there is a relationship between ecosystems and economic systems and that is not possible to dissociate their respective analyzes. The population physical economy needs to be analyzed according the carrying capacity of the environment[71]. From that point of view, different growth models are defined: the "continuous growth" where physical limits are themselves growing exponentially; the "sigmoid growth" where the population physical economy stabilizes itself when it is approaching the carrying

[65] Thomas Robert Malthus, *An Essay on the Principle of Population* (Place of publication unknown: IAP, 2010).
[66] Malthus. Page 61.
[67] 'Steady State Economy Definition', *Center for the Advancement of the Steady State Economy* (blog), accessed 28 May 2019, https://steadystate.org/discover/definition/.
[68] Herman E. Daly, *Steady-State Economics*, 2nd ed., with new essays (Washington, D.C: Island Press, 1991).
[69] Ralf Eriksson and Jan Otto Andersson, *Elements of Ecological Economics*, 2010, https://doi.org/10.4324/9780203857045.
[70] Steven N. Durlauf and Lawrence Blume, eds., *The New Palgrave Dictionary of Economics*, 2nd ed (Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2008).
[71] Eriksson and Andersson, *Elements of Ecological Economics*.

capacity of the environment and to finish the "overshoot and collapse" model where the population physical economy exceeds and the carrying capacity of the environment and so collapses drastically because of the deterioration of its capacity[72].

To conclude, according to the Ecological Economics concept, as being part of the ecosystem, the economic growth can't exceed the carrying capacity of the environment until a certain point. This is particularly true for some non-renewable resources as the fossil ones as presented through the entropy hour glass[73].

2. Second contradiction of capitalism

The second contradiction of capitalism ensues also from Maxism. O'Connor introduces the mode of production in his theory, explaining that the natural resources are considered as any other commodity, created entirely by market forces[74]. This link between nature and capital relies upon a lack of reality. If the value of the capital depends only from the believing that the people have in it and can change instantly, the natural resources are following a timing process, independently of the value that the people have in it[75]. Thus, treating natural resource as any other commodity appears as an evident contradiction. Considering that, to fulfill the needs established by the quest of growth, the natural resources are exploited more than their natural turnover of creation[76]. In other terms, it means that a large part of the resources exploited come from the natural resources tanks. In consequences, this kind of exploitation destroys, degrades or impairs the condition of production by falsely asserting its infinite productive capability[77].

[72] Eriksson and Andersson.
[73] Eriksson and Andersson.
[74] Martin Spence, 'Capital Against Nature: James O'Connor's Theory of the Second Contradiction of Capitalism', *Capital & Class* 24, no. 3 (1 October 2000): 81–110, https://doi.org/10.1177/030981680007200105.
[75] Spence.
[76] Spence.
[77] Spence.

3. Political Ecology

The Political Ecology theory relies upon green politics which consist in the conduct of policies in favor of the environment. It's the political debate about the use of the environment and the space which constitutes the political ecology theory[78]. Ensued from Marxism, political ecology assumes that capitalism relies upon labor and nature exploitation[79]. Thus, the debate about the resources' management is part of the application range of the political ecology theory. Contrary to the apolitical studies on the environment, political ecology gives an understanding on the power relations in the political debate, between different theories, and the consequences of those choices on the environment[80].

As an area of new accessible resources, the arctic is subject of exploitation by states and firms. Because of the environmental issues in the arctic, political ecology offers a good understanding of the arctic resources exploitation which can be recognized as unsustainable and undesirable.

4. Accumulation by dispossession

The concept of accumulation by dispossession ensues from Marxism, its critic to capitalism and more precisely from the nature exploitation aspect. David Harvey developed the theory of "primitive accumulation" which describe the behavior of western nations in their wealth extraction from the natural resources[81]. This concept encourages the accumulation of

[78] Paul Robbins, *Political Ecology: A Critical Introduction*, Critical Introductions to Geography (Malden, MA: Blackwell Pub, 2004).
[79] Robbins.
[80] Robbins.
[81] David Harvey, *The New Imperialism* (Oxford ; New York: Oxford University Press, 2003).

natural resources by states and firms to pursue their quest of wealth and growth. The application of this concept corresponds to Locke's conception of the labor and the property which is affiliated. In fact, Locke developed in his second treaty of government the idea that the property belongs to anyone and that's from the labor that people are detaining property rights on an article[82]. Allowing anyone to extract the article that he is producing through his labor, Locke affirms that it can't happens a conflict on a land and if it happens, the people have just to go a bit farer[83]. This theory has been developed in the 17th century, after the discovery of the "New world"; the idea of infinite available lands is assumed. Nevertheless, this conception has had its day and we assist to an aggressive quest for resources and lands. Moreover, the specific location of some natural resources and the value which is affiliated because of the fluctuation of the market, increased this competition for the resources.

So, in a finite world, where the resources are limited and the competition between states rising up, the accumulation by dispossession theory is more applicable. The need to the natural resources access is relative to the ability of the others to access to it. It's less the ability to a state to extract resources than its ability to extract more than the others which is important[84]. If the debate on accumulation by dispossession is still pursuing in the literature, the definition employed in this research concerns the relations between the states and their actions to pursue their quest of natural resources access[85].

[82] John Locke, *Two Treatises of Government* (Whitefish, Mont.: Kessinger Publishing, 1988).
[83] Locke.
[84] Harvey, *The New Imperialism*.
[85] Harvey.

5. Tragedy of commons

Originally developed by William Forster in 1833, the tragedy of commons theory has been popularized in 1968 by Garret Hardin[86]. To illustrate this theory, Garret Hardin used the image of a pasture accessible and used by farmers to graze their cattle[87]. Because this pasture is belonging to anyone, everyone can give to its cattle the grass produced on it. Following the theory of accumulation by dispossession, the competition which exists between the farmers will push them up to extract the maximum of resources to feed their cattle. According to the second contradiction of capitalism, the quest of growth and the short-term profit benefit, the farmers will consider the pasture and the grass as any other capital commodity. This is because each farmer individually reaps the benefits gained from grazing their cattle, whereas the environmental cost is carried collectively across all the farmers and a diminished responsibility for sustainability is created[88]. Hardin therefore infers that under such conditions human beings are inclined to maximize short-term gain over long-term sustainability[89]. In consequences, the extraction of the grass will exceed the ability of the pasture to renew it in its consumption time, occurring damages on it. Thus, the overexploitation of the pasture will prevent in the time the farmers to exploit it. There is the central argument of Hardin's theory: without a private ownership or an institutional control, the open access to common resources will lead to an inevitable environmental disaster[90].

[86] Daniel H. Cole, Graham Epstein, and Michael D. McGinnis, 'Digging Deeper into Hardin's Pasture: The Complex Institutional Structure of "The Tragedy of the Commons"', SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 28 November 2013), https://papers.ssrn.com/abstract=2361177.
[87] Cole, Epstein, and McGinnis.
[88] Garrett Hardin, 'The Tragedy of the Commons', *Journal of Natural Resources Policy Research* 1, no. 3 (8 July 2009): 243–53, https://doi.org/10.1080/19390450903037302.
[89] Hardin.
[90] Cole, Epstein, and McGinnis, 'Digging Deeper into Hardin's Pasture'.

In consequences, unbelieving in a common management of the resources, Hardin's affirms that there are only two possibilities to exploit natural resources preventing a natural disaster: privatization or nationalization[91].

By privatizing, the cost of environmental damages will be support individually; this incites the owner to preserve the environment in exploiting sustainably the resource, giving him the possibility to pursue this exploitation in the future. It creates individually responsibility[92].

By nationalizing, it's the government which will control the access and so preserve the environment of overexploitation. Thus, the responsibility on the resource is supported by the collectivity, under the judgment of the government[93].

This theory will be applied in this paper to understand the exclusive sovereignty that states are claiming upon some territorial areas. This theory will also permit in this research to better understand the Elinor Ostrom's theory about the governing of the commons.

6. Governing the commons

As an alternative, an answer to the Tragedy of the Commons, Elinor Ostrom developed in his book *Governing the Commons*[94], the common property theory which

[91] Cole, Epstein, and McGinnis.
[92] Cole, Epstein, and McGinnis.
[93] Cole, Epstein, and McGinnis.
[94] Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, The Political Economy of Institutions and Decisions (Cambridge ; New York: Cambridge University Press, 1990).

refutes the only alternatives between privatization and nationalization to manage common resources.

Based on empirical studies, Elinor Ostrom looked for theorize what is happening in some communities. From that point, the Ostrom's law: "A resource arrangement that works in practice can work in theory" has been outlined by Lee Anne Fennel in the International Journal of the commons[95]. This empirical approached permitted to disprove the general statement that common resources management leads to environmental disaster. In being the first assumption of the tragedy of the commons' theory, the natural resources management has been studied only through the institutional systems theorized. One of the main critic is so that the natural resources management has been studied only from its intelligible aspect[96]. The Elinor Ostrom's contribution is finally her empirical approach, starting from the sensitive world. She demonstrated that in the vacuum of the institutions, some communities have developed an independent way of governance concerning the natural resources[97]. In her book, she presented several successful common resources management in Japan, Switzerland, Spain and in Philippines[98].

Finally, the issue concerning the commons is not the lack of institution as argued by Hardin but their unsuitability[99]. The gorgeous number of counter examples of success

[95] Lee Fennell, 'Ostrom's Law: Property Rights in the Commons', *International Journal of the Commons* 5, no. 1 (3 March 2011), https://doi.org/10.18352/ijc.252.
[96] Fennell.
[97] Fennell.
[98] Ostrom, *Governing the Commons.*
[99] Cole, Epstein, and McGinnis, 'Digging Deeper into Hardin's Pasture'.

management above resources is enforcing the Elinor Ostrom's theory and the possibility of Commons' Governance. The development of the commons governance theory has not been only made in opposition of her contemporaries in the intelligible world; it has also been developed to promote the improvements realized in the sensitive one[100]. Through the different examples presented, a good commons governance can support a long-term benefit for the community in the economic sphere but also in the social and the environmental one. Because of the proximity between the environment and the managers of the land, their preoccupations are not anymore only economical but wider[101]. Thus, in considering the good preservation of the environment as a new goal, the community is ensuring is ability to sustain its utilization of the resources available. On the social aspect, in applying a local governance above the resources, in processes where everyone is able to participate and express himself, the risk of tensions, oppositions are restricted and the unity of the community is preserved.

In this study, the common property theory is applied in opposition with the usual exclusive property right. The virgin area, in terms of regulation, exploitations and governance of the Arctic are making this area an interesting case of study. In challenging claims above territorial sovereignty, the common property theory is offering an alternative whose the benefit would be shared between the circumpolar states, preserving the arctic environment and their multilateral relations.

[100] Fennell, 'Ostrom's Law'.
[101] Ostrom, *Governing the Commons.*

V. Analysis: An Arctic Development

Still considered as the new border, the stake in the Arctic is its partition, its control. In fact, global warming and the retreat of the ice pack in the region are offering new economic opportunities which are sharpening appetites for the control of the area. At the top, we are finding the circumpolar states but because the Arctic is a global region, we also find more meridional states as China, Singapore or the European Union. This local and global interest is due to the limit of the resources. Indeed, economic growth comes from the added value of the products; in other terms, it comes from the transformation operated on the products[102]. At the beginning, those transformations were realized by the human work until the invention of the steam engine in the end of the 18th century which permitted to create movement from the thermic energy. This invention has been a real revolution in that it permitted to multiply the quantity of energy available. It needs less energy for a man to extract coal or other energetic resources easily convertible in mechanical one than for feed and host himself[103]. Thanks to it, economic growth increased exponentially since that invention[104]. Then, Economic growth is based on the energetic consumption, which is essentially constituted of fossil energy: 85% in 2016 at the world scale[105].

To continue to fulfill the population's needs and their quest of growth, states haves to secure their energetic resources' access. Because the more accessible ones are already exploited

[102] Maxence Cordiez / Ingénieur dans le secteur de l'énergie, 'Bientôt la fin de la croissance', lesechos.fr, 15 August 2018, https://www.lesechos.fr/idees-debats/cercle/cercle-185839-bientot-la-fin-de-la-croissance-2198068.php#Xtor=AD-6000.
[103] l'énergie.
[104] 'Economic Growth', Our World in Data, accessed 16 August 2018, https://ourworldindata.org/economic-growth.
[105] 'Les énergies fossiles toujours au cœur du mix énergétique mondial', Connaissance des Énergies, juin 2017, https://www.connaissancedesenergies.org/les-energies-fossiles-toujours-au-coeur-du-mix-energetique-mondial-170614.

and that the oil discoveries are falling[106], states are looking at new reserves of those resources: the Arctic. Thus, those resources are presenting a strategic interest for the different states. Norway and The Federation of Russia are extracting from the arctic, a financial windfall thanks to the gas and the oil, and the resources located in Greenland can offer him the needs for its independence. In consequence, the control of the Arctic is not only a question of resources access but also a factor of power.

The arctic opportunities are emerging following several causes from the opening of new markets (tourism; fisheries, new paths, oils), but also the volatility of the resources' prices on market. If some prices are growing up, the exploitation of some resources in the arctic will become competitive and so, will be exploited.

Thus, because the arctic is revealing a double stake: an environmental and a strategic one. The circumpolar states will enter in a competition in order to control or assert their domination on those resources whereas the meridional states which will use their influence to take part in it. In the same time, the environment impact will suffer from this exploitation and this competition.

1. The Arctic Paradox: Natural resources and Climate Change

Global warming and the technical progress opened new possibilities in the Arctic. First thanks to the ice pack retreat and secondly thanks to the improvement of the technology and so

[106] 'Lobal Oil Discoveries and New Projects Fell to Historic Lows in 2016', accessed 16 August 2018, https://www.iea.org/newsroom/news/2017/april/global-oil-discoveries-and-new-projects-fell-to-historic-lows-in-2016.html.

our ability to face the natural limits put in place in the region. Because we are evolving in a consumption society's model, our need in resources is never ending. Thus, the need to find new resources is increasing and the arctic appears as a genuine tank whose limits are undefinable because unknown. From this observation, the exploitation of those resources are leading to an arctic paradox: « the faster we use fossil fuels, the sooner we get access to new oil and gas resources. »[107]

a. Natural resources exploitation

Since the invention of the steam engine in the end of the 18th century, the energy deployed thanks to the work force of the people has been replaced by the thermic force which is then transformed in mechanic movement. Then this mechanic movement permitted the industrialization and the mass production.

After having massively used coal in Western Europe and still in different countries as Poland, China, United States or India, another resource has been discovered in the late 19th century as oil. This new resource, with a better energy performance has been preferred and its utilization rose up in the 20th century. To face with the needs of the increasing population and the industrialization, our needs in energy also rose up since the 18th century; reaching 5,652 TWh (Terrawatt-hours) per year in 1800, our consumption reached 153,595 TWh in 2017[108]. Thanks to its energetic performance, their accessibility and the facility of their extraction, fossil fuels has been preferred and are still; they represent 85% of the world energetic consumption[109].

[107] Teemu Palosaari, 'The Arctic Paradox (and How to Solve It). Oil, Gas and Climate Ethics in the Arctic', in *The GlobalArctic Handbook*, ed. Matthias Finger and Lassi Heininen (Cham: Springer International Publishing, 2019), 141–52, https://doi.org/10.1007/978-3-319-91995-9_9.
[108] Hannah Ritchie and Max Roser, 'Energy Production & Changing Energy Sources', *Our World in Data*, 28 March 2014, https://ourworldindata.org/energy-production-and-changing-energy-sources.
[109] 'Les énergies fossiles toujours au cœur du mix énergétique mondial'.

Table: Energetic performance of different resources (Ton Oil Equivalent)[110]

Energy source	Quantity (in Ton)	Energy in TOE (Ton Oil Equivalent)
Oil	1 ton	1 TOE
Natural gas	1 ton	1,095 TOE
Coal	1 ton	0,667 TOE
Wood	1 ton	0,322 TOE
Uranium	1 ton	10 000 – 16 000 TOE

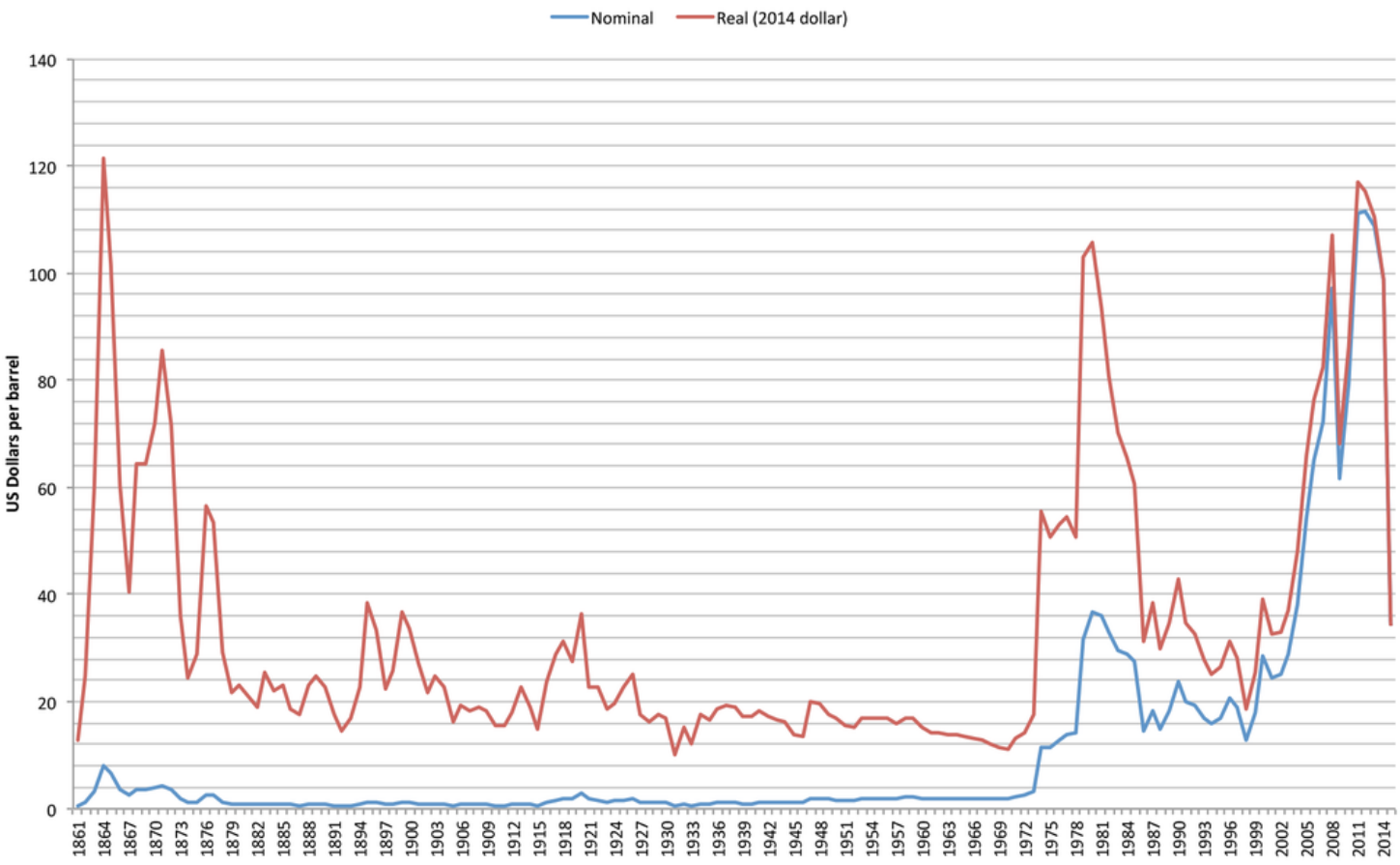
Moreover, according to the Second contradiction of capitalism which consider the natural resources as any other commodity, the fossil resources price didn't follow an evolution according to the ecosystem but according to a capitalist model: the law of supply and demand[111]. Because of the lack between the reality and the market, the value of this resource depends only the value the people put in it. The oil shock in 1973 is a perfect example, the rise up of the prices didn't depend on the reality of stocks but in the value the people put in it. Because fossil fuels are the major source of energy, and because the needs in energy production are indispensable, the value we put in it is corresponding to the benefit we extract from it and not the stock of available resources[112]. This mass extraction doesn't take into account the limits of fossil resources in the nature and let falsely assert that an infinite productive growth is possible[113]. Thus, by drawing in the energetic tanks, without taking care to the natural turnover of the resources, our mass production model society risks to face with scarcity of the resources and cause an augmentation of the costs and the prices[114].

Otherwise, in rising the prices of those resources, the exploitation of new ones become profitable. The first exploitation took place in the Arabic peninsula where the extraction was simple and not expensive. With the increasing prices of oil and the new technologies, it became

[110] World Energy Council, 'World Energy Resources: Annexes'.
[111] Spence, 'Capital Against Nature'.
[112] Spence.
[113] Spence.
[114] Eriksson and Andersson, *Elements of Ecological Economics*.

profitable to exploit new oil deposits as the offshore one or the more complex. For example, the extraction of shale gas in the US has been possible thanks to the oil high prices on the market. By analogy, the same process may take place in the Arctic to exploit its fossil resources.

Graph: Crude Oil prices since 1861[115]



As presented above, two reasons are leading to the exploration and the exploitation of the fossil resources of the Arctic: scarcity of the stocks and the value (price) of the resources. Both are determining their accessibility.

[115] British Petroleum, 'Crude Oil Prices since 1861', n.d., http://www.bp.com/sectionbodycopy.do?categoryId=7500&contentId=7068481.

About the scarcity of the fossil resources, there are evaluated to 1 482, 77 billions of barrels in the world[116]. Nevertheless, the world consumption of energy reached in 2018 100 millions of barrels per day and the demand is still rising up 1,5% per year[117]. According to Goldman Sachs and Mackenzie, the peak of oil could be reach between 2024 and 2036[118]. Because the consumption is rising up and the stock is not rising up as fast than it is consumed, the consumption will exceed the "natural" turnover creation of oil, reducing its stock and occurring scarcity of the resource[119].

About the value we put in the oil resource, its scarcity will increase the value we put in it and so its price. By increasing the oil's price, the extraction of new oil deposits will be profitable. For this reason, the arctic fossil resources deposit let emerged an interest for the region[120]. On September 2015, Shell renounced to its 7 billion $ off-shore oil extraction project in the Arctic (Alaska) because the project was "not commercial"[121]. In other words, the cost for extraction and exploitation were higher than the benefit gained by selling it according to the market price. Indeed, in November 2014, the oil price dropped significantly from 91,36 $ to 44,63 $. As the oil shock this drop demonstrates the lack or reality between the real cost of extraction and exploitation and the value we put in this resource. Nevertheless, the scarcity of the resource will rise up the value of the oil resource and from that point, the Shell oil extraction project in the Arctic would become commercial again.

---

[116] 'OPEC : OPEC Share of World Crude Oil Reserves', accessed 29 May 2019, https://www.opec.org/opec_web/en/data_graphs/330.htm.
[117] 'Now near 100 Million Bpd, When Will Oil Demand Peak?', *Reuters*, 20 September 2018, https://www.reuters.com/article/us-oil-demand-peak-idUSKCN1M01TC.
[118] 'Now near 100 Million Bpd, When Will Oil Demand Peak?'
[119] 'Global Oil Discoveries and New Projects Fell to Historic Lows in 2016', accessed 27 May 2019, https://www.iea.org/newsroom/news/2017/april/global-oil-discoveries-and-new-projects-fell-to-historic-lows-in-2016.html.
[120] 'Strategic Importance of the Arctic in U.S. Policy'.
[121] '3 Reasons Why Shell Halted Drilling In the Arctic', National Geographic News, 28 September 2015, https://news.nationalgeographic.com/energy/2015/09/150928-3-reasons-shell-halted-drilling-in-the-arctic/.

Both scarcity and price are determining the accessibility of the resources: its presence in the ecosystem and its commercial access according to the market price.

b. Faster we use the fossil fuels, the sooner we get access to new oil resources

Once the fossil resources have been discovered in the Arctic and the market price is making commercial their exploitation, this activity is facing with another barrier: the Arctic reality. The Ice pack and the technology needs are preventing a safe exploitation of the fossil resources in the Arctic Ocean. Nevertheless, the Arctic is facing to a paradox: « the faster we use fossil fuels, the sooner we get access to new oil and gas resources. »[122]

It's arctic climate which is making the area inhospitable for the people. With extreme temperature and the unequal repartition of the sunlight, the ice pack is occupying an important part of the area. Nevertheless, climate change is impacting the arctic environment, accelerating ice melting and the retreat of the ice pack[123]. It is particularly true in the Arctic where the global temperature rose up of 2,1°C since 1950 although its 0,6°C at the global level[124]. This phenomenon is principally caused by the concentration of carbon dioxide present in the atmosphere. Concentration which rose up significantly since the postindustrial period and which create a greenhouse effect around the earth, as a blanket keeping the heat and accelerating the ice melting[125]. In addition, permafrost thaw is releasing an important quantity of carbon dioxide and methane which is a more powerful greenhouse effect gas and which accelerates

[122] Palosaari, 'The Arctic Paradox (and How to Solve It). Oil, Gas and Climate Ethics in the Arctic'.
[123] Change, 'Arctic Sea Ice Minimum | NASA Global Climate Change'.
[124] Autissier and Orsenna, *Passer par le Nord*. p. 253
[125] 'Climate Change Causes'.

climate change[126]. If the ice pack is not offering interesting resources, the sea reveals, thanks to its retreat, an abundance of natural resources: the one present in the water column (fishes, free passage) and the one present in the continent shelf (oils, minerals). In fact, the human activity, extracting natural resources as oils, accelerated the concentration of carbon dioxide in the atmosphere and so the ice melting, permitting the access to new resources[127]. If this new resources are sharping the appetite of energy companies and circumpolar states, it also makes an ethical issue[128].

Moreover, the improvement of some technologies allows few industrial sectors to push the boundaries of the arctic. The Yamal LNG gas field in The Federation of Russia, located 600 km above the Arctic Circle, is one of the largest LNG project in the world and breaks all records: 4 billion of barrels equivalent oil of reserves, 16,5 million barrels exploited per year, three liquefaction trains, 15 ice breaker LNG ships[129]. The extreme climate conditions including permafrost during the constructions, temperatures which could reach -50°C and the ice pack push the initiator of the projects to develop new technologies. One of the most visible one is the construction of 15 LNG ships ice breakers[130]. The first one, named "Christophe de Margerie" in tribute to the CEO of Total who died in 2014 in a plane accident and who was one of the initiator of the project, is able to transport 172, 600 cubic meters and to break until 2,5 meters of ice pack[131]. It did a striking entrance in travelling through the North-East path without ice breaker and establishing a new speed record in 19 days on August 2017[132]. Considering the

[126] Christian Knoblauch et al., 'Methane Production as Key to the Greenhouse Gas Budget of Thawing Permafrost', *Nature Climate Change* 8, no. 4 (April 2018): 309, https://doi.org/10.1038/s41558-018-0095-z.
[127] Palosaari, 'The Arctic Paradox (and How to Solve It). Oil, Gas and Climate Ethics in the Arctic'.
[128] Palosaari.
[129] Total, 'Yamal LNG: The Gas That Came in from the Cold', total.com, accessed 17 June 2018, https://www.total.com/en/energy-expertise/projects/oil-gas/lng/yamal-lng-cold-environment-gas.
[130] Total.
[131] Total.
[132] Patrick Barkham, 'Russian Tanker Sails through Arctic without Icebreaker for First Time', *The Guardian*, 24 August 2017, sec. Environment, http://www.theguardian.com/environment/2017/aug/24/russian-tanker-sails-arctic-without-icebreaker-first-time.

Yamal project, it's intensifying, as any other fossil exploitation, climate change, giving access to new resources in the Arctic.

Both climate change, encouraged by oil exploitation, and technology improvement, are facilitating the exploitation of the arctic resources, last frontier to the north. Such activity is facing with an ethical debate about the Arctic.

2. The Arctic Paradox: Natural Resources and Security in the Arctic

On August 2nd, 2007, a Russian submarine planted a Russian flag on the Arctic floor below the North Pole[133]. Almost one century after the Amundsen expedition to the South Pole, reached on December 14th, 1911, the North Pole symbolizes the final border reached on Earth[134]. If legally, this flag doesn't imply and bind anything, it's a symbol which sat up the governments of the circumpolar states as the Canadian Foreign Minister Peter MacKay: "This is not the 15th century, you can't go around the world and just plant the flags and say "We're claiming this territory"."[135] This flag represents the competition which appeared two decades ago in Arctic.

[133] Tom Parfitt, 'Russia Plants Flag on North Pole Seabed', *The Guardian*, 2 August 2007, sec. World news, https://www.theguardian.com/world/2007/aug/02/russia.arctic.
[134] 'Amundsen's South Pole Expedition', The Public Domain Review, 14 December 2011, https://publicdomainreview.org/collections/amundsens-south-pole-expedition/.
[135] Parfitt, 'Russia Plants Flag on North Pole Seabed'.

Currently, the circumpolar states are competing to claim the sovereignty upon their respective continental shelf and some of those claims are confronting themselves[136]. The interest for the continental shelf resides in the fossil resources in it, a real energetic deposit for those countries. Furthermore, because, those resources represent an energetic security, a struggle emerged to secure and affirm the sovereignty of those states upon it[137].

a. Access the resources for an energetic security

In a society, where the energy is needed to fulfill the needs of the population and pursue the quest of growth of the government, the access to energetic resources, and first among them fossil ones, becomes a question of security[138]. According to the accumulation by dispossession theory, nations are pursuing their domination on the natural resources in order to secure their quest of growth[139]. Because the energy is the start of the mass production process thanks to the power deployed by the consumption of the energetic resources, the states are looking for secure a deposit of it. By securing it, they secure their ability to absorb their needs in the future and more than the others, they will secure their own existence from internal and external threats. Internal because the needs of the populations are fulfilled and external because war depends a lot on energy supplies.

The Arctic is considered as a world resources tank. The IEA estimates to 30% the reserves of natural gas in the Arctic, when the IFP estimates the oil reserves in the Arctic to

[136] 'TAI-Infographic-ContinentalShelfClaims.Pdf', accessed 29 May 2019, https://www.thearcticinstitute.org/wp-content/uploads/2017/06/TAI-Infographic-ContinentalShelfClaims.pdf.
[137] Scott G. Borgerson, 'Arctic Meltdown: The Economic and Security Implications of Global Warming', *Foreign Affairs* 87, no. 2 (2008): 63–77.
[138] Harvey, *The New Imperialism*.
[139] Harvey.

13% and the natural gas ones to 30% [140]. Nevertheless, those resources are inequitably located in the Arctic (see Annex 2). If the Alaska contains the major part of the oil reserves (28 billion of barrels), the Kara sea contains the major part of natural gas (18 400 billions of cubic meters)[141].

Those resources are located, for an important part, within the continental shelf. Those states have sovereignty upon the resources within the EEZ (200 miles from the baseline). In this area, they can extract the resources they want within the water column and the continental shelf. Some resources are located forward and are sharping the appetite of some governments and firms[142]. To access to those resources, the Montego Bay adopted in 1982, offered in its article 76 and 77 a possible extension of a state sovereignty upon the continental shelf[143]. Under its article 76, the Montego Bay Conventions permits the extension of the rights upon the resources located in the continental shelf conditionally upon the decision of the Commission on the Limits of the Continental Shelf[144]. This claim has to be motivated thanks to geologic, geographic others kinds of data susceptible to demonstrate that the continental shelf claimed is linked with the emerged land of its territory. Such kind of claim is limited to ten years after the entry into force of the Montego Bay in each country[145]. Only the USA didn't ratified the United Nations Convention on the Law of the Sea (UNCLOS), giving to the US government the ability to make a claim for 10 years after their ratification and the entry into force of the convention in the United States. Currently, Canada, Norway, The Federation of Russia and Denmark submitted a claim in front of the Commission on the Limits of the Continental Shelf[146]. Some claims conflicts each other, notably the "Lomonosov Ridge", giving to the Commission a role

[140] Pierre Breteau, 'Et si les réserves pétrolières de l'Arctique étaient moins importantes que l'on ne le pensait'.
[141] International Energy Agency, *Resources to Reserves 2013*.
[142] Treves, 'United Nations Convention on the Law of the Sea'.
[143] Treves.
[144] 'United Nations Convention on the Law of the Sea - Main Page'. Article 76
[145] 'United Nations Convention on the Law of the Sea - Main Page'. Article 4, Annex ii
[146] 'TAI-Infographic-ContinentalShelfClaims.Pdf'.

of arbitrator (See Annex 3). No one of the claims from Canada, Norway, The Federation of Russia and Denmark have already been adjudicated[147].

Furthermore, this example is interesting to put in perspective with the property theory of John Locke expressed in the *Two treatises of government*[148]. In this essay, Locke explains that anything belongs to anyone until he worked to obtain it. Using the example of an apple on a tree, Locke says that this apple doesn't belong to anyone until someone picked it to eat it. He says that the action of picking the apple is making it the property of the picker. In others words, because a human owns himself, the work of anyone make the benefit of his work, his property[149]. Locke pursues in explaining that someone already picked an apple, someone else will be able to pick another apple and if there is no apple anymore, he will be able to pick another one, on another tree a bit farer. This conception has been developed after the discovery of the "New world", the America, which lets believe that the resources are infinite. According to this theory, there is no conflict to exploit resources until someone worked for it, because if someone is already exploiting it, it's just necessary to go a bit farer[150]. In the Arctic, this theory is facing with natural limits: there is nothing farthest north.

Facing with this limit, the scarcity of the fossil resources and the rise up of their value, the fossil energetic resources are becoming strategic and their control a question of security.

[147] 'TAI-Infographic-ContinentalShelfClaims.Pdf'.
[148] Locke, *Two Treatises of Government*.
[149] Locke.
[150] Locke.

b. A struggle to access the resources

On December 15th, 2010, a Treaty between Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean has been signed in order to solve a dispute on the sovereignty of each state upon the Barents Sea and the Arctic Ocean. For 40 years, the two governments discussed about the delimitation of this space, giving to each, its own area with his sovereignty on it[151]. On this matter, the conflict has been resolved through the diplomatic way. By analogy, the Commission on the limits of the continental shelf shall resolve conflicts through the international law process and prevent any conflict in the area.

Nevertheless, in planting a Russian flag under the North Pole, the leader of the scientific expedition, M. Artur Chilingarov, declared: "The Arctic is ours and we should manifest our presence"[152]. Few days later, the Russians strategic bombers flew over the Arctic Ocean; it was the first time since the end of the Cold War. As mentioned in their Arctic strategy policy, one of the Russian strategic priorities in the Arctic is to fulfill the needs of the Russian Federation in "hydrocarbon resources, water bio-resources and other types of strategic raw materials."[153] Moreover, since 2000, the principal energy companies in Russia (Gazprom and Rosneft) have been nationalized, or at least are controlled by the government[154]. This policy about the energy sector can be analyzed under the « resource nationalism » concept. According to Scott Borgerson and Shane C. Tayloe, this policy aims to elevate the Federation of Russia on the same level than the United States. Its ability to control the Arctic permits to compete with the other world power[155]. Moreover, this resource nationalism encouraging a competition which, if

[151] Øystein Jensen, 'Current Legal Developments The Barents Sea', *The International Journal of Marine and Coastal Law* 26, no. 1 (1 January 2011): 151–68, https://doi.org/10.1163/157180811X541422.
[152] Borgerson, 'Arctic Meltdown'.
[153] 'Russia's Arctic Strategy: Energy Extraction (Part III)', *The Arctic Institute* (blog), 20 February 2018, https://www.thearcticinstitute.org/russias-arctic-strategy-energy-extraction-part-three/.
[154] 'Russia's Arctic Strategy'.
[155] 'Russia's Arctic Strategy'.

it doesn't lead to an armed conflict, still occurs tensions on the political level[156]. The Arctic remains a strategically region for the country, as a deposit of resources, the new way for shipping and the development of the Russian arctic coast[157].

In consequences and following this resource nationalism, the Federation of Russia a military and security policy to secure those resources in the area. In the last years, the launch of new icebreakers, new military bases in the Russian islands can be either analyzed as cooperation or conflict intentions (See Annex 4)[158]. The former US Secretary of Defense James Mattis considered this militarization as "aggressive"[159]. However, Russian official are presenting those installations and this military deployment in the Arctic as a matter of cooperation with foreign states as demonstrated during the military exercises realized each year with Norway[160]. Finally, according to the concept of resource nationalism, the militarization of the Arctic by the Federation of Russia has also for goal to secure the resources and preserve the strategic resources for the country.

Furthermore, the Federation of Russia is not the only state which look with interest the Arctic region. In 2018, China published the white book about its intentions about the Arctic[161]. In this strategy, China expressed that the Arctic has been and is still impacted by climate change. Because of it, the Ice pack is melting giving access to new fossil resources, fishing ones but also a free way through the North East path[162]. Because of it, China is calling for a world cooperation in the Arctic, considering that the area is both a common issue and a common

[156] 'Russia's Arctic Strategy'.
[157] 'Russian Policy Towards the Arctic', *Warsaw Institute* (blog), 14 December 2018, https://warsawinstitute.org/russian-policy-towards-arctic/.
[158] 'Russia's Arctic Strategy: Military and Security (Part II)', *The Arctic Institute* (blog), 13 February 2018, https://www.thearcticinstitute.org/russias-arctic-military-and-security-part-two/.
[159] 'Russia's Arctic Strategy'.
[160] 'Russia's Arctic Strategy'.
[161] 'Arctic Strategy China 2018.Pdf', n.d.
[162] 'Arctic Strategy China 2018.Pdf'.

interest. Aiming to promote peace and stability in the Arctic, China wants to get involved in the Arctic governance[163]. The main interest for China is the North East path which coincide with the Belt and Road initiative of the Chinese government[164]. The Belt and Road Initiative is a world infrastructure investment program in order to facilitate the transport of the merchandise from Asia to Europe and Africa[165]. Added to the two first ways through central Asia and along the Asiatic continent by boat, the "Polar Silk Road" became the third one planned by the Chinese government. Being the fastest way between China and Europe, the North East path reveals an important and strategic road for the Chinese exportations[166].

On May 6th, 2019, during the annual Arctic Council session, Mike Pompeo, Secretary of State for foreign affairs for the United States described the Arctic as "an arena of global power and competition"[167]. Considering the melting sea as a "new opportunity for trade", he expressed the implication of the United States to face with main presence of Russia and the intentions of China[168]. He also added that: "we're entering a new age of strategic engagement in the Arctic, complete with new threats to the Arctic and its real estate, and to all of our interests in the region"[169]. The Federation of Russia, was particularly targeted with some declarations were: "These provocative actions are part of a pattern of aggressive Russian behavior here in the Arctic" or "Russia is already leaving snow prints in the form of army boots"[170].

[163] 'Arctic Strategy China 2018.Pdf'.
[164] 'Belt and Road Initiative (BRI)', accessed 29 May 2019, //www.ebrd.com/what-we-do/belt-and-road/overview.html.
[165] 'Belt and Road Initiative (BRI)'.
[166] 'Along the Road – China in the Arctic | European Union Institute for Security Studies', accessed 29 May 2019, https://www.iss.europa.eu/content/along-road-%E2%80%93-china-arctic.
[167] Carol Morello, 'Pompeo Warns of the Dangers of Russian and Chinese Activities in the Arctic', *Washington Post*, 6 May 2019, sec. National Security, https://www.washingtonpost.com/world/national-security/pompeo-warns-of-dangers-of-russian-and-chinese-activities-in-the-arctic/2019/05/06/e2e99690-7001-11e9-9eb4-0828f5389013_story.html.
[168] Jennifer Hansler CNN, 'Pompeo: Melting Sea Ice Presents "New Opportunities for Trade"', CNN, accessed 30 May 2019, https://www.cnn.com/2019/05/06/politics/pompeo-sea-ice-arctic-council/index.html.
[169] Morello, 'Pompeo Warns of the Dangers of Russian and Chinese Activities in the Arctic'.
[170] Morello.

Isolated compare to the rest of the circumpolar states, Mike Pompeo in its speech, showed the preoccupation of the United States about the activities of the Federation of Russia and China in the Arctic[171]. This rise up of tension between those states invites to have a look on the Thucydides trap. Developed by Thucydides after the Peloponnese war (431-404 av. J. C.), this theory consists in explaining the real motivation for war[172]. When an established nation power is contested by an ascending nation power, the confrontation may must results to the war[173]. In the Arctic, by winning the Cold War, the United States were supposed to be the Arctic power but in increasing its presence in the region, the Federation of Russia is competing with the United States. The situation with China is similar: China is competing to become the first global power in the world. According to the Thucydides trap, a war may occurs between the two or three states and the Arctic can be the first battlefield. In fact, Thucydides explained that a tension is increasing between the different nation power and it just need one spark to engulf an armed conflict. Nevertheless, Thucydides explained that it's possible to prevent such kind of conflict if the two nation power accept to share the position of leader for a while and then let one of them become the leader he is[174]. Following that point, the nation powers need to cooperate instead of competing each other.

To conclude, several elements are making the Arctic subject to competition: the fossil resources and other raw materials which are representing an energy deposit for the circumpolar states. Furthermore, the Russian resource nationalism strategy and its militarization as the Chinese investment in the area are making the United States nervous about what is happening

[171] Somini Sengupta, 'United States Rattles Arctic Talks With a Sharp Warning to China and Russia', *The New York Times*, 7 May 2019, sec. Climate, https://www.nytimes.com/2019/05/06/climate/pompeo-arctic-china-russia.html.
[172] Graham Allison, 'The Thucydides Trap', *Foreign Policy* (blog), accessed 30 May 2019, https://foreignpolicy.com/2017/06/09/the-thucydides-trap/.
[173] Allison.
[174] Allison.

in the Arctic. Then, depending on the perception of all the arctic stakeholders, the Thucydides trap can lead to a conflict or a cooperation field.

VI. Discussion: From a common interest to a common issue

The mass production model of society in place since the industrialization period in the 19th century is now facing with climate change and the impact of the human being on the environment. Conscious of this stake, the nations of the world decided to gather their efforts to limit the consequences of climate change. From the Earth Summit in 1992 in Rio de Janeiro, the international community discussed this matter and engaged itself in a struggle against climate change[175]. Adopted in 2000 at United Nations headquarter in New York, the United Nations millennium declaration put in place eight goals to be reached in 2015 in order to eradicate the extreme poverty and improve the basic needs of the people[176]. Then, in September 2015, has been adopted a new set of sustainable development goals to succeed the previous one and pursue the action of the United Nations to preserve peace, sustainability, education, equality, the hanger's struggle…[177] In the same year, on December 12th, 2015, has been adopted the Paris agreement, the first global agreement on climate change[178]. By signing this agreement, the whole world community recognized the impact of the society on climate change and its impact on the environment. Furthermore, in order to sign this agreement, all the nations had to present an ambitious plan to reduce their CO2 emissions in the atmosphere, engaging, morally the states on the international stage and toward the international community[179].

Those actions at the international level reveals some aspects of Political Ecology. This theory refers to the green policies put in place in favor of the environment in order to sustain

[175] 'Earth_Summit', accessed 30 May 2019, https://www.un.org/geninfo/bp/enviro.html.
[176] 'United Nations Millennium Development Goals', accessed 30 May 2019, https://www.un.org/millenniumgoals/bkgd.shtml.
[177] 'United Nations Millennium Development Goals'.
[178] 'The Paris Agreement | UNFCCC', accessed 30 May 2019, https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.
[179] 'The Paris Agreement | UNFCCC'.

the management of the resources and preserve the environment[180]. Political ecology offers an understanding on the motivation of a government to adopt, or not, regulations to allow or forbid the exploitation of the resources, or in the opposite, to preserve, or not those resources[181]. In confronting different theories of Political Ecology, it's possible to discuss the debate of the policies and decisions in favor of the environment[182].

To conduct this discussion, we assume that in ratifying the different nations engaged themselves to adopt policies in favor of the environment. Due regard to their engagement, two theories will be observed to discuss the impact of those policies on the environment: the Tragedy of Commons and the Governing the Commons' one.

1. A local and unilateral responsibility

According to the tragedy of Commons theory, there is only two ways to preserve the resources from the human extraction: nationalization or privatization[183]. Indeed, Garret Hardin explained that if the resources belong to everyone, the exploiter will not try to preserve the natural turnover creation of the resources but will extract all the resources to secure it and prevent others to take it[184]. Because there is a risk from the others to extract the resources and prevent me to access it, I will extract it as much as I can to secure my needs. According to

[180] Paul Robbins, 'Political Ecology', n.d., 300.
[181] Robbins.
[182] Robbins.
[183] Hardin, 'The Tragedy of the Commons'.
[184] Hardin.

Garret Hardin, there are two possibilities to preserve the environment and respect the natural turnover creation of the resources.

About the privatization, in granting a company the exclusivity on a land, the company will take care of the environment in order to preserve the resources in a long term view[185]. However, with nationalization, the management of the resources, and so, the preservation of the environment is realized by the government, or at least a public agency. This public organization will allow the different actors to extract a certain amount of the resources in order to preserve the environment[186].

Technically, in preventing other actors to extract a resource from an area, the competition will be prevented and so, the environment should be preserved from the damages of the competition.

Nevertheless, three main critics can be opposed to this theory and its application in Arctic. First, the exclusivity of a nation or a company needs to be recognized by its neighbors. If the 200 miles from the coast, the claims about the sovereignty on the continental shelf beyond are not adjudicated and some of them are in conflicts. If the exclusivity is not recognized by the others states, the competition will may appear again; and with the competition, the abuses it can occurs. Secondly, in its explanations, Garett Hardin is using the example of the grass in a pasture, so a renewable resource[187]. In the case of the fossil resources in the Arctic, the resource is non-renewable, it's just a tank of resources without any natural turnover of creation. In consequences, there is no interest for the country or a company to preserve the environment and

[185] Hardin.
[186] Hardin.
[187] Hardin.

the resources natural turnover creation because it doesn't exist for fossil resources. Thirdly, as explained with the arctic paradox above, the extraction and the consumption of the fossil resources is increasing the melting of the arctic ice cap and so, the Arctic environment[188]. In consuming fossil fuels, the emissions of CO2 are increasing, favoring climate change and the rise of the temperatures. With it, the meltdown of the Arctic ice will accelerate and the disappearing of the ice pack will happen. The goal of preserving the environment is then lost.

To conclude, in obtaining the exclusivity on an area to extract its resources, the competition for its access is avoided. With it, the security risks are disappearing too. Nevertheless, the goal of preserving the environment is not reached and is even aggravated. From this point, the exclusivity and the repartition of the area in the Arctic doesn't appear as solution to preserve the environment. Another way needs to be discussed.

Because the extraction of fossil resources and its consumption is encouraging climate change and the rise of the temperatures, the Arctic pack ice melts and occurs impact beyond the borders of the Arctic. In fact, the rising water is impacting the whole world and not only the circumpolar states. In consequences, it's more appropriate to consider all the nations as an Arctic's nations and look for a solution on a global level.

[188] Palosaari, 'The Arctic Paradox (and How to Solve It). Oil, Gas and Climate Ethics in the Arctic'.

2. A Global and collective responsibility

In 2008, has been adopted the Ilulissat declaration by Canada, Denmark, the United States, Norway and the Federation of Russia[189]. This declaration expresses that the five coastal states are cooperating to preserve the environment and prevent conflicts in the Arctic[190]. This declaration represents one more proof of the ambition of those states to preserve the Arctic and prevent any damage on its environment. Because they consider that the preservation of this area is a common concern, they adopted a common decision, exceeding the limits of their own exclusive area[191].

Few years ago, face to the tragedy of the commons theory, Elinor Ostrom offered another theory on the management of the Common goods: the Governing the Commons' theory. From an empirical approach, she determine that some common goods have been successfully managed by a collectivity without damaging the environment[192]. For Elinor Ostrom the fail in resources management is not the lack of an organization but its unsuitability[193]. This unsuitability results of the mangers in those institutions who are concerned about an economic concern; those managers are suffering of a lack between themselves and the environment they are managing[194]. In consequences, in determining the good preservation of the environment as the main goal of the institution, the collectivity will be able to furnish the necessary efforts to deal with the challenges and succeed to preserve it[195].

[189] '2008-Ilulissat-Declaration.Pdf', accessed 30 May 2019, https://cil.nus.edu.sg/wp-content/uploads/2017/07/2008-Ilulissat-Declaration.pdf.
[190] '2008-Ilulissat-Declaration.Pdf'.
[191] '2008-Ilulissat-Declaration.Pdf'.
[192] Ostrom, *Governing the Commons.*
[193] Fennell, 'Ostrom's Law'.
[194] Fennell.
[195] Ostrom, *Governing the Commons.*

On the specific case of the fossil resources' exploitation in the Arctic, the governing the commons' theory is offering a new way of management of those resources. Giving to the local population, more interested in the preservation of their environment than the benefit of a production activity, the decisions and policies applied for the preservation of the Arctic would be more pertinent.

For example, the Arctic council, established in 1996, is a forum where the different circumpolar states are discussing about the issues in the Arctic[196]. The local communities and indigenous people are taking part in it but they only have a consultative role, in any manner they are involved in the decisions votes[197]. Because they are the first concerned about the alteration of the environment, they should be first to make a decision. Nevertheless, the Arctic Council offers a unique forum about the Arctic issues, where the main concerned states are able to speak to the others.

On December 2nd, 2017, the circumpolar states with some others (Japan, China, European Union and Korea) adopted a moratorium on fishing in the Arctic, 200 km around the North Pole[198]. Less than one year later, this moratorium has been enlarged to the high seas of the Arctic Ocean[199]. If a large part of the area is still covered by pack ice all year long, it will not be the case in the future and this moratorium is preventing future abuses in the region. According to the Governing the Commons' theory, if the main goal is to preserve the environment, there is a place for policies and action to preserve it. In consequences, it's not a question of forum or geographic proximity with the Arctic, it's a matter of concern of the

[196] 'Arctic Council - Arctic Council'.
[197] 'Arctic Council - Arctic Council'.
[198] 'L'océan Arctique sera préservé de la pêche', 3 December 2017, https://www.la-croix.com/Sciences-et-ethique/Environnement/Locean-Arctique-sera-preserve-peche-2017-12-03-1200896632.
[199] Anonymous, 'EU and Arctic Partners Enter Historic Agreement to Prevent Unregulated Fishing in High Seas', Text, Fisheries - European Commission, 3 October 2018, https://ec.europa.eu/fisheries/eu-and-arctic-partners-enter-historic-agreement-prevent-unregulated-fishing-high-seas_en.

different parties. If all the parties which are concerned in the Arctic preservation, are aiming to preserve its environment, then their decisions and actions will preserve it.

Because or the impact of the Arctic around the world, we all have an interest in its preservation and so, we all should participate in it.

VII. Conclusion

Despite the inhospitable aspect of the region, the Arctic stokes the lusts of a wide range of actors (government, companies, International Organizations…). In fact, it seems at first glance that the Arctic is an infinite white desert were are leaving few animals and some indigenous communities. As Vilhjalum Stefansson said: "There are two kinds of Arctic problems, the imaginary and the real. Of the two, the imaginary are the most real"[200]. In fact, of the Arctic problems, the realest one is this white desert: the pack ice. The real problem to access the Arctic resources is the pack ice which prevent their exploitation.

Considering that, climate change is struggling with this white desert, increasing the temperatures and accelerating its melting. An Arctic paradox is that faster we use fossil fuels, the sooner we get access to new oil and gas resources. According to the energy needs of our mass production society, the arctic reveals a wonderful tank of energy, able to fulfill our needs for decades. Because of the strategic interest of those resources, the accesso to them would let emerge a competition between the different states in order to control them.

The consequence is the melt of the entire pack ice of the Arctic. If we do have difficulties to restrains our needs in energy, we also do have difficulties to see disappear our imaginary of the Arctic: its pack ice. Because it became a symbol of the struggle against climate change, its melting makes emerge a global climate ethic debate in ourselves.

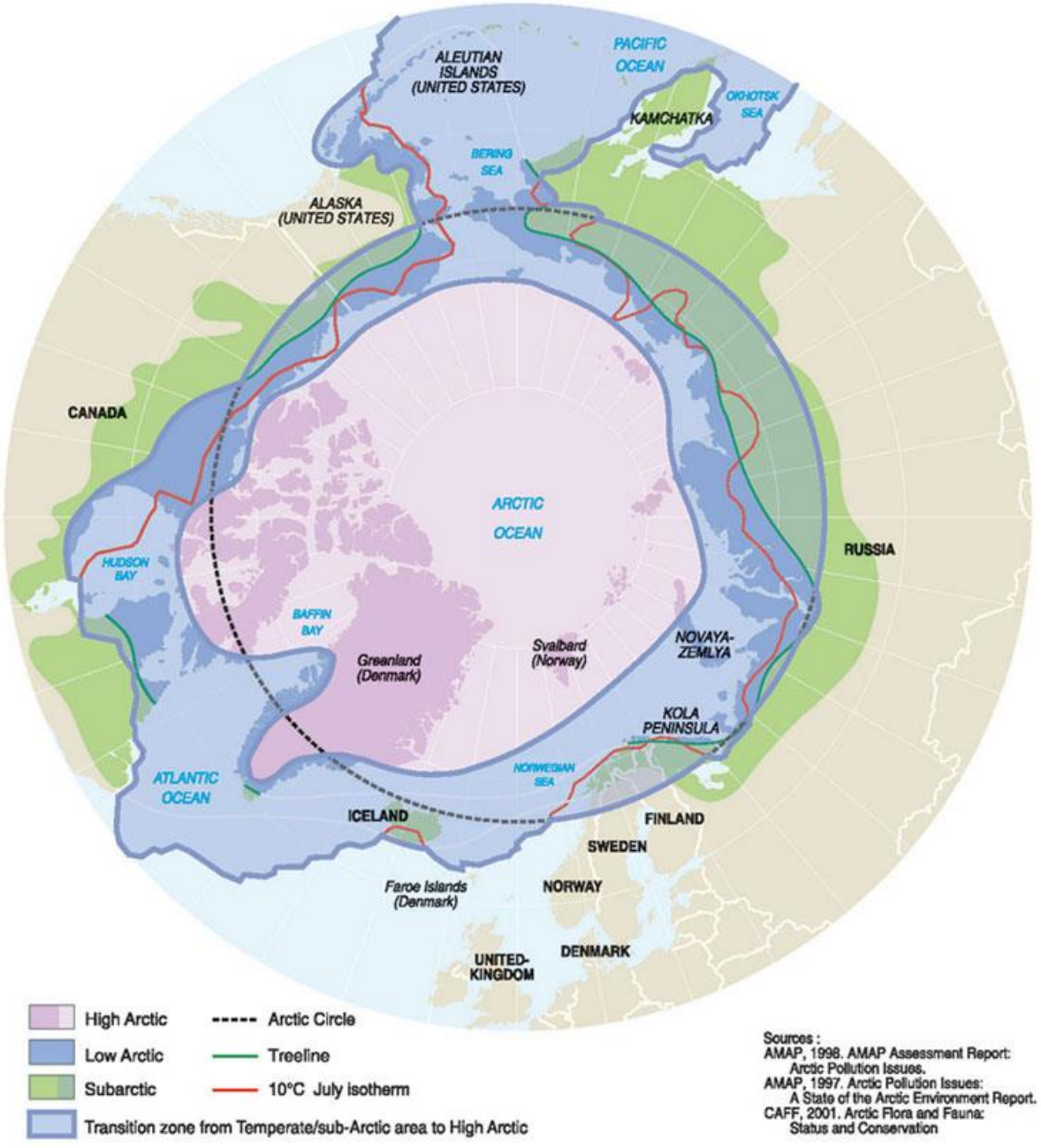
[200] Vilhjalmur Stefansson, *The Arctic in Fact and Fable* (Foreign policy association, 1945).

Because of the global impact of climate change in the Arctic and the global impact of the melting pack ice on the world, we do, through our governments and by ourselves, take engagement to preserve the environment and its symbol: the Arctic. This global climate ethic debate push us to choose between our infinite quest of growth and the preservation of our environment.

This research didn't succeed to bring to the light a sustainable management of the Arctic fossil resources. It appears that, as for fishing, the only way to preserve the Arctic and the disappearance of its pack ice, our imaginary of this area, would only be to let fossil resources where there are and conclude a global agreement for a moratorium on the Arctic resources.

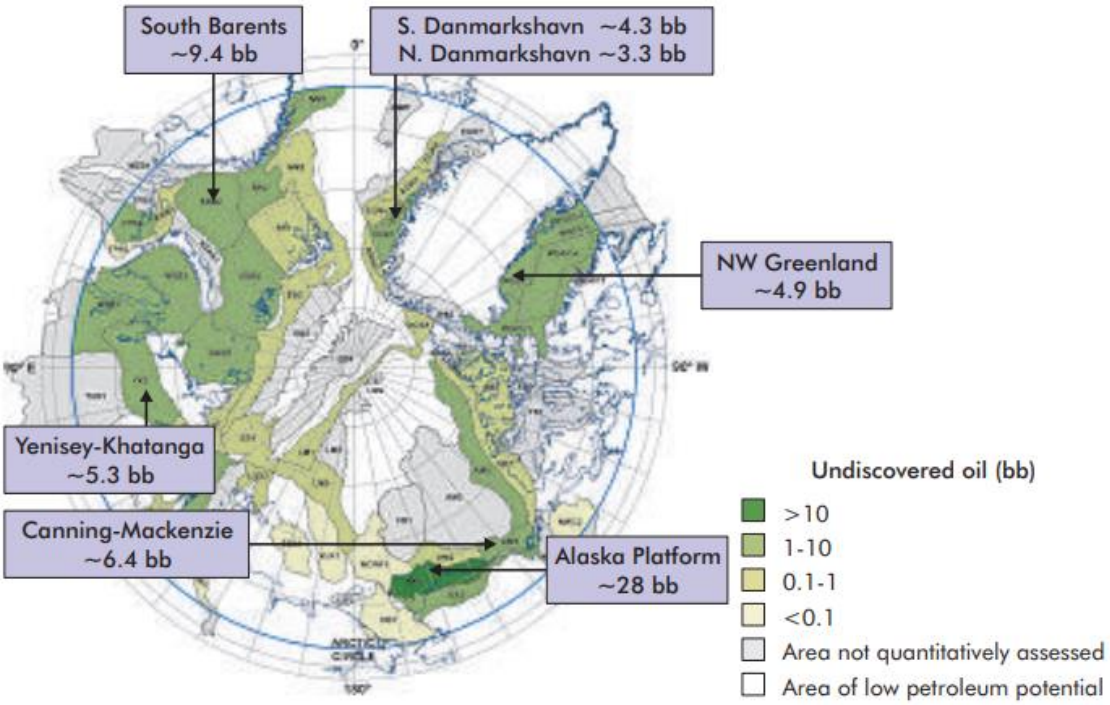
VIII. Annexes

Annex 1: The different limitations of the Arctic



Annex 2: The unequal distribution of fossil resources in the Arctic

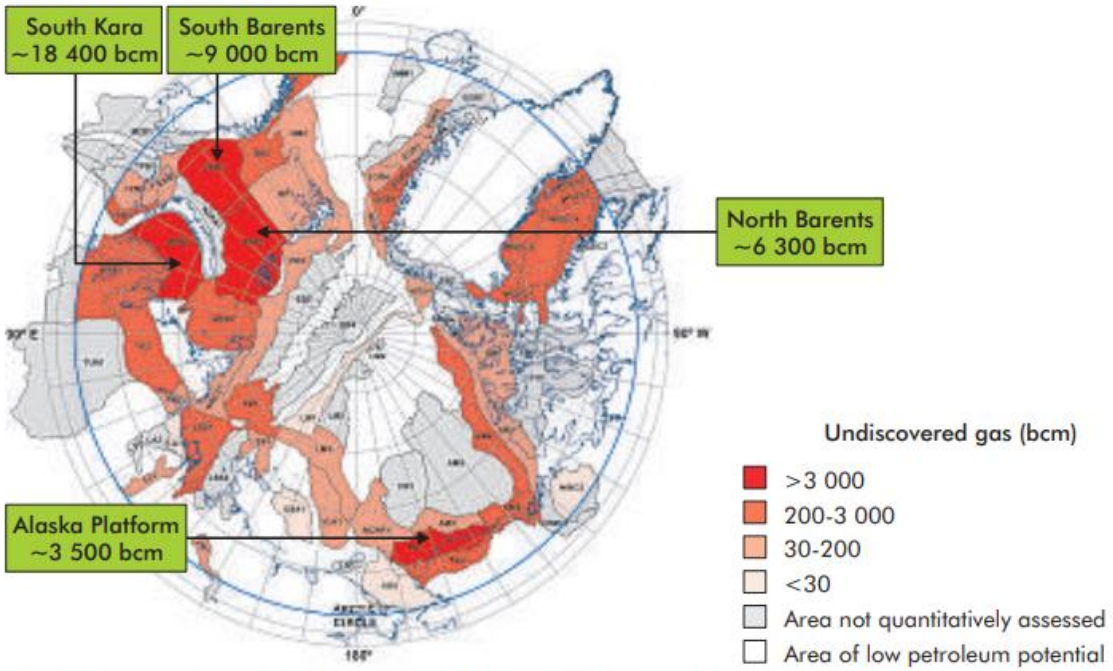
***Figure 4.13** • Distribution of undiscovered oil accumulations*



This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.

Source: Bird *et al.*, 2008.

***Figure 4.14** • Distribution of undiscovered natural gas resources*

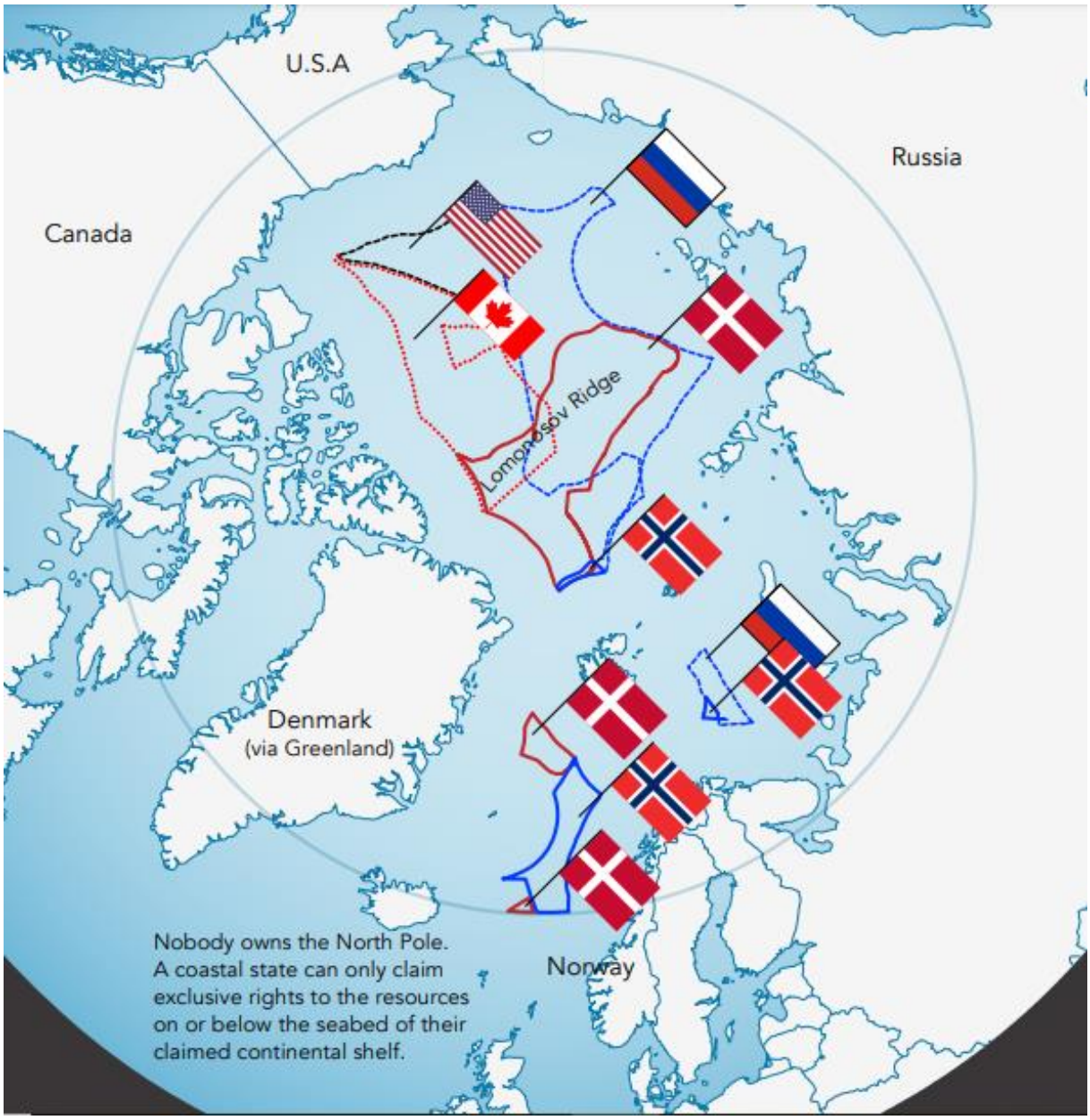


This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.

Note: bcm = billion cubic metres.

Source: Bird *et al.*, 2008.

Annex 3: The claims of the Arctic states under the UNCLOS convention



201

[201] 'TAI-Infographic-ContinentalShelfClaims.Pdf'.

Annex 4: Map of the Military bases in the Arctic (US and Russia)

202

[202] Robbie Gramer, 'Here's What Russia's Military Build-Up in the Arctic Looks Like', *Foreign Policy* (blog), accessed 29 May 2019, https://foreignpolicy.com/2017/01/25/heres-what-russias-military-build-up-in-the-arctic-looks-like-trump-oil-military-high-north-infographic-map/.

IX. Bibliography

- '3 Reasons Why Shell Halted Drilling In the Arctic'. National Geographic News, 28 September 2015. https://news.nationalgeographic.com/energy/2015/09/150928-3-reasons-shell-halted-drilling-in-the-arctic/.
- '1958 Geneva Conventions on the Law of the Sea - Main Page'. Accessed 15 May 2018. http://legal.un.org/avl/ha/gclos/gclos.html.
- '2008-Ilulissat-Declaration.Pdf'. Accessed 30 May 2019. https://cil.nus.edu.sg/wp-content/uploads/2017/07/2008-Ilulissat-Declaration.pdf.
- Allison, Graham. 'The Thucydides Trap'. *Foreign Policy* (blog). Accessed 30 May 2019. https://foreignpolicy.com/2017/06/09/the-thucydides-trap/.
- 'Along the Road – China in the Arctic | European Union Institute for Security Studies'. Accessed 29 May 2019. https://www.iss.europa.eu/content/along-road-%E2%80%93-china-arctic.
- 'Amundsen's South Pole Expedition'. The Public Domain Review, 14 December 2011. https://publicdomainreview.org/collections/amundsens-south-pole-expedition/.
- Anonymous. 'EU and Arctic Partners Enter Historic Agreement to Prevent Unregulated Fishing in High Seas'. Text. Fisheries - European Commission, 3 October 2018. https://ec.europa.eu/fisheries/eu-and-arctic-partners-enter-historic-agreement-prevent-unregulated-fishing-high-seas_en.
- 'Arctic Council - Arctic Council'. Accessed 23 May 2018. http://www.arctic-council.org/index.php/en/about-us/arctic-council.
- 'Arctic Strategy China 2018.Pdf', n.d.
- Aron, Raymond, and Christian Bachelier. *Une Histoire Du Vingtième Siècle*. Paris: Plon, 1996.
- 'ATS - Environment Protocol'. Accessed 15 May 2018. https://www.ats.aq/e/ep.htm.
- Autissier, Isabelle, and Erik Orsenna. *Passer par le Nord: la nouvelle route maritime*. Collection Folio 6134. Paris: Gallimard, 2014.
- Barkham, Patrick. 'Russian Tanker Sails through Arctic without Icebreaker for First Time'. *The Guardian*, 24 August 2017, sec. Environment. http://www.theguardian.com/environment/2017/aug/24/russian-tanker-sails-arctic-without-icebreaker-first-time.
- 'Belt and Road Initiative (BRI)'. Accessed 29 May 2019. //www.ebrd.com/what-we-do/belt-and-road/overview.html.

- Blay, Samual KN. ‘New Trends in the Protection of the Antarctic Environment: The 1991 Madrid Protocol’. *American Journal of International Law* 86, no. 2 (1992): 377–399.

- Borgerson, Scott G. ‘Arctic Meltdown: The Economic and Security Implications of Global Warming’. *Foreign Affairs* 87, no. 2 (2008): 63–77.

- British Petroleum. ‘Crude Oil Prices since 1861’, n.d. http://www.bp.com/sectionbodycopy.do?categoryId=7500&contentId=7068481.

- Change, NASA Global Climate. ‘Arctic Sea Ice Minimum | NASA Global Climate Change’. Climate Change: Vital Signs of the Planet. Accessed 16 May 2018. https://climate.nasa.gov/vital-signs/arctic-sea-ice.

- ‘Climate Change Causes: A Blanket around the Earth’. Climate Change: Vital Signs of the Planet. Accessed 14 May 2018. https://climate.nasa.gov/causes.

- ‘Climate Change Evidence: How Do We Know?’ Climate Change: Vital Signs of the Planet. Accessed 14 May 2018. https://climate.nasa.gov/evidence.

- CNN, Jennifer Hansler. ‘Pompeo: Melting Sea Ice Presents “New Opportunities for Trade”’. CNN. Accessed 30 May 2019. https://www.cnn.com/2019/05/06/politics/pompeo-sea-ice-arctic-council/index.html.

- Cole, Daniel H., Graham Epstein, and Michael D. McGinnis. ‘Digging Deeper into Hardin’s Pasture: The Complex Institutional Structure of “The Tragedy of the Commons”’. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 28 November 2013. https://papers.ssrn.com/abstract=2361177.

- Colson, David A. ‘The United States Position on Antarctica’. *Cornell Int’l LJ* 19 (1986): 291.

- Dag, O. ‘George Orwell: You and the Atomic Bomb’. Accessed 16 May 2018. http://orwell.ru/library/articles/ABomb/english/e_abomb.

- Daly, Herman E. *Steady-State Economics*. 2nd ed., with New essays. Washington, D.C: Island Press, 1991.

- Dubreuil, Nicolas, and Michel Ismaël Khelifa. *Mystères polaires*. Paris: Points, 2015.

- Durlauf, Steven N., and Lawrence Blume, eds. *The New Palgrave Dictionary of Economics*. 2nd ed. Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2008.

- ‘Earth_Summit’. Accessed 30 May 2019. https://www.un.org/geninfo/bp/enviro.html.

- ‘Economic Growth’. Our World in Data. Accessed 16 August 2018. https://ourworldindata.org/economic-growth.

- énergie, Maxence Cordiez / Ingénieur dans le secteur de l’. ‘Bientôt la fin de la croissance’. lesechos.fr, 15 August 2018. https://www.lesechos.fr/idees-

debats/cercle/cercle-185839-bientot-la-fin-de-la-croissance-2198068.php#Xtor=AD-6000.

- Eriksson, Ralf, and Jan Otto Andersson. *Elements of Ecological Economics*, 2010. https://doi.org/10.4324/9780203857045.

- Fennell, Lee. 'Ostrom's Law: Property Rights in the Commons'. *International Journal of the Commons* 5, no. 1 (3 March 2011). https://doi.org/10.18352/ijc.252.

- Foucher, Michel. *L'Arctique: la nouvelle frontière*. CNRS, 2014.

- 'Global Oil Discoveries and New Projects Fell to Historic Lows in 2016'. Accessed 27 May 2019. https://www.iea.org/newsroom/news/2017/april/global-oil-discoveries-and-new-projects-fell-to-historic-lows-in-2016.html.

- Gramer, Robbie. 'Here's What Russia's Military Build-Up in the Arctic Looks Like'. *Foreign Policy* (blog). Accessed 29 May 2019. https://foreignpolicy.com/2017/01/25/heres-what-russias-military-build-up-in-the-arctic-looks-like-trump-oil-military-high-north-infographic-map/.

- Grotius, Hugo, Richard Hakluyt, William Welwood, and David Armitage. *The Free Sea*. Natural Law and Enlightenment Classics. Indianapolis, Ind: Liberty Fund, 2004.

- Hardin, Garrett. 'The Tragedy of the Commons'. *Journal of Natural Resources Policy Research* 1, no. 3 (8 July 2009): 243–53. https://doi.org/10.1080/19390450903037302.

- Harvey, David. *The New Imperialism*. Oxford ; New York: Oxford University Press, 2003.

- 'Henry George Liddell, Robert Scott, A Greek-English Lexicon, Ἀρκτικός'. Accessed 16 May 2018. http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.04.0057%3Aentry%3D%2315193&redirect=true.

- International Energy Agency, ed. *Resources to Reserves 2013: Oil, Gas and Coal Technologies for the Energy Markets of the Future*. Paris: OECD, 2013.

- Jackson, Randal. 'Global Climate Change: Effects'. Climate Change: Vital Signs of the Planet. Accessed 14 May 2018. https://climate.nasa.gov/effects.

- Jensen, Øystein. 'Current Legal Developments The Barents Sea'. *The International Journal of Marine and Coastal Law* 26, no. 1 (1 January 2011): 151–68. https://doi.org/10.1163/157180811X541422.

- Knoblauch, Christian, Christian Beer, Susanne Liebner, Mikhail N. Grigoriev, and Eva-Maria Pfeiffer. 'Methane Production as Key to the Greenhouse Gas Budget of Thawing Permafrost'. *Nature Climate Change* 8, no. 4 (April 2018): 309. https://doi.org/10.1038/s41558-018-0095-z.

- ‘Les énergies fossiles toujours au cœur du mix énergétique mondial’. Connaissance des Énergies, juin 2017. https://www.connaissancedesenergies.org/les-energies-fossiles-toujours-au-coeur-du-mix-energetique-mondial-170614.

- Lidegaard, Bo. *I kongens navn: Henrik Kauffmann i dansk diplomati 1919-1958.* Kbh.: Samleren, 2004.

- ‘Lobal Oil Discoveries and New Projects Fell to Historic Lows in 2016’. Accessed 16 August 2018. https://www.iea.org/newsroom/news/2017/april/global-oil-discoveries-and-new-projects-fell-to-historic-lows-in-2016.html.

- ‘L’océan Arctique : Physiographie, Circulation Océanique, Évolution de La Banquise, Intérêts Géostratégiques et Perspectives Environnementales - Recherches Arctiques’. Accessed 15 May 2018. http://recherchespolaires.inist.fr/?L-ocean-Arctique-physiographie.

- ‘L’océan Arctique sera préservé de la pêche’, 3 December 2017. https://www.la-croix.com/Sciences-et-ethique/Environnement/Locean-Arctique-sera-preserve-peche-2017-12-03-1200896632.

- Locke, John. *Two Treatises of Government*. Whitefish, Mont.: Kessinger Publishing, 1988.

- Luedtke, Brandon. ‘An Ice-Free Arctic Ocean: History, Science, and Scepticism’. *Polar Record* 51, no. 2 (March 2015): 130–39. https://doi.org/10.1017/S0032247413000636.

- Malthus, Thomas Robert. *An Essay on the Principle of Population*. Place of publication unknown: IAP, 2010.

- McLean, Iain. *The Concise Oxford Dictionary of Politics*. Oxford University Press, 1996.

- Morello, Carol. ‘Pompeo Warns of the Dangers of Russian and Chinese Activities in the Arctic’. *Washington Post*, 6 May 2019, sec. National Security. https://www.washingtonpost.com/world/national-security/pompeo-warns-of-dangers-of-russian-and-chinese-activities-in-the-arctic/2019/05/06/e2e99690-7001-11e9-9eb4-0828f5389013_story.html.

- ‘Natural Resources’. Accessed 15 May 2018. http://arctic.ru/resources/.

- ‘Now near 100 Million Bpd, When Will Oil Demand Peak?’ *Reuters*, 20 September 2018. https://www.reuters.com/article/us-oil-demand-peak-idUSKCN1M01TC.

- ‘OPEC : OPEC Share of World Crude Oil Reserves’. Accessed 29 May 2019. https://www.opec.org/opec_web/en/data_graphs/330.htm.

- Ostrom, Elinor. *Governing the Commons: The Evolution of Institutions for Collective Action*. The Political Economy of Institutions and Decisions. Cambridge ; New York: Cambridge University Press, 1990.

- Pachauri, R. K., Leo Mayer, and Intergovernmental Panel on Climate Change, eds. *Climate Change 2014: Synthesis Report*. Geneva, Switzerland: Intergovernmental Panel on Climate Change, 2015.

- Palosaari, Teemu. 'The Arctic Paradox (and How to Solve It). Oil, Gas and Climate Ethics in the Arctic'. In *The GlobalArctic Handbook*, edited by Matthias Finger and Lassi Heininen, 141–52. Cham: Springer International Publishing, 2019. https://doi.org/10.1007/978-3-319-91995-9_9.

- Parfitt, Tom. 'Russia Plants Flag on North Pole Seabed'. *The Guardian*, 2 August 2007, sec. World news. https://www.theguardian.com/world/2007/aug/02/russia.arctic.

- 'Pic de « Douceur » Au Pôle Nord'. Accessed 15 May 2018. http://www.lemonde.fr/climat/article/2018/02/27/pic-de-chaleur-en-arctique-avec-des-temperatures-30-degres-au-dessus-des-normales-saisonnieres_5263373_1652612.html.

- Pierre Breteau. 'Et si les réserves pétrolières de l'Arctique étaient moins importantes que l'on ne le pensait', 9 September 2017, Le monde edition. http://www.lemonde.fr/les-decodeurs/visuel/2017/09/09/et-si-les-reserves-petrolieres-de-l-arctique-etaient-moins-importantes-que-l-on-ne-le-pensait_5183450_4355770.html.

- 'Resources2013.Pdf'. Accessed 15 May 2018. https://www.iea.org/publications/freepublications/publication/Resources2013.pdf.

- Ritchie, Hannah, and Max Roser. 'Energy Production & Changing Energy Sources'. *Our World in Data*, 28 March 2014. https://ourworldindata.org/energy-production-and-changing-energy-sources.

- Robbins, Paul. 'Political Ecology', n.d., 300.

- ———. *Political Ecology: A Critical Introduction*. Critical Introductions to Geography. Malden, MA: Blackwell Pub, 2004.

- Roser, Max. 'Economic Growth'. *Our World in Data*, 24 November 2013. https://ourworldindata.org/economic-growth.

- 'Russian Policy Towards the Arctic'. *Warsaw Institute* (blog), 14 December 2018. https://warsawinstitute.org/russian-policy-towards-arctic/.

- 'Russia's Arctic Strategy: Energy Extraction (Part III)'. *The Arctic Institute* (blog), 20 February 2018. https://www.thearcticinstitute.org/russias-arctic-strategy-energy-extraction-part-three/.

- 'Russia's Arctic Strategy: Military and Security (Part II)'. *The Arctic Institute* (blog), 13 February 2018. https://www.thearcticinstitute.org/russias-arctic-military-and-security-part-two/.

- Sengupta, Somini. ‘United States Rattles Arctic Talks With a Sharp Warning to China and Russia’. *The New York Times*, 7 May 2019, sec. Climate. https://www.nytimes.com/2019/05/06/climate/pompeo-arctic-china-russia.html.

- Spence, Martin. ‘Capital Against Nature: James O’Connor’s Theory of the Second Contradiction of Capitalism’. *Capital & Class* 24, no. 3 (1 October 2000): 81–110. https://doi.org/10.1177/030981680007200105.

- ‘Steady State Economy Definition’. *Center for the Advancement of the Steady State Economy* (blog). Accessed 28 May 2019. https://steadystate.org/discover/definition/.

- Stefansson, Vilhjalmur. *The Arctic in Fact and Fable*. Foreign policy association, 1945.

- ‘Strategic Importance of the Arctic in U.S. Policy’. Accessed 15 May 2018. https://fas.org/irp/congress/2009_hr/arctic.pdf.

- ‘TAI-Infographic-ContinentalShelfClaims.Pdf’. Accessed 29 May 2019. https://www.thearcticinstitute.org/wp-content/uploads/2017/06/TAI-Infographic-ContinentalShelfClaims.pdf.

- ‘The Paris Agreement | UNFCCC’. Accessed 30 May 2019. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.

- Tocqueville, Alexis de. *De la démocratie en Amérique. 2: ...* Collection Garnier-Flammarion brochée 354. Paris: Garnier-Flammarion, 1981.

- Total. ‘Yamal LNG: The Gas That Came in from the Cold’. total.com. Accessed 17 June 2018. https://www.total.com/en/energy-expertise/projects/oil-gas/lng/yamal-lng-cold-environment-gas.

- Treves, Tullio. ‘United Nations Convention on the Law of the Sea’. *United Nations Audiovisual Library of International Law (Http://Untreaty. Un. Org/Cod/Avl/Pdf/Ha/Uncls/Uncls_e. Pdf)*, 2008.

- ‘United Nations Convention on the Law of the Sea - Main Page’. Accessed 15 May 2018. http://legal.un.org/avl/ha/uncls/uncls.html.

- ‘United Nations Millennium Development Goals’. Accessed 30 May 2019. https://www.un.org/millenniumgoals/bkgd.shtml.

- ‘What Is the Arctic? | National Snow and Ice Data Center’. Accessed 16 May 2018. https://nsidc.org/cryosphere/arctic-meteorology/arctic.html.

- Wilson, Woodrow. ‘Fourteen Points’. In *Address to Congress*, 8:33–36, 1918.

- World Energy Council. ‘World Energy Resources: Annexes’, 2013. https://www.worldenergy.org/wp-content/uploads/2013/09/WER_2013_Annexes.pdf.