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Arctic Solutions
The Frozen (Thawing) Relations of the High North

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Contents

Introduction

It's cold, inhospitable and deadly. The image of the Arctic in years past is one of bewilderment, ignorance and awe. How the image of the Arctic has changed in recent years can be directly linked to our recognition that the Arctic has a great deal to offer in meeting the basic needs of future generations. Although we are still in awe of the Arctic's cruel beauty, new technologies are making it easier to explore the once unmanageable environment. The Arctic has moved into the mainstream with a host of suitors jockeying for position in the race to possess the Arctic and all that it contains. To highlight this increased interest, Russia's 'National Security Until 2020' initiative, has upgraded the High North to one of Russia's main priorities and identifies the Arctic as liable to produce military conflict in the future linked to competition for the Arctic's abundant raw materials.[1] Even Canada, a peaceful and respectful country, has stepped outside the box of traditional Canadian rhetoric by giving Canada's Northern Strategy a tagline: "Our North, our heritage, our future". The Arctic is increasingly viewed as central to meeting the challenges of an ever changing world where climate change and economic benefit drive international agreements and policies. However Canada and Russia are not the only actors here. The other Arctic Five states: Denmark, Norway, and the United States of America all lay claims to some area or activity within the Arctic region. The Arctic is a unique part of this world, one that has been left largely untouched by human hands, and one that is on the brink of being changed forever.

The Arctic Energy Situation at a Glance

To fully understand Arctic issues, resource figures must be taken into account. Every nation involved in the Arctic debate has considered and based its policies on its set of numbers and resource estimates. A U.S. Geological Survey (USGS) in 2009 put Arctic resource figures in the range of thirty percent of the remaining world reserves of natural gas and ten percent of the world's undiscovered oil.[2] With US

[1] Kefferputz, Roderick, On Thin Ice? (Mis) interpreting Russian Policy in the High North, European Policy Studies, February 2010. pp.2.
[2] S.Yalowitz, Kenneth, James F. Collins, and Ross A. Virginia, The Arctic Climate Change and Security Policy Conference, Carnegie Endowment for International Peace, 1-3 December 2008. pp.13.

petroleum consumption of 20.7 million barrels of petroleum per day, 7.5 billion barrels per year,[3] it is not hard to understand why the United States has interest in securing supplies of petroleum resources. No matter how powerful a state, it seeks to assure a reliable supply of oil and gas to avoid over dependency on a narrowing group of key oil and gas exporters. States with little or no domestic oil and gas feel doubly exposed to conflicts that might deny them the resources needed to feed their economies. The United States is not alone in this troublesome international game of energy supply vulnerability. Russia has had its problems supplying markets both because of its geography but also as a result of internal politics and policies. Recently, countries that separate Russia from its customers in the European Union are accused of breaking agreements and engaging in bad business practices causing disruptions in the transit of hydrocarbons. These relatively new situations in Russia's "near-abroad" are causing lines to be drawn in the snow that did not exist in the days of the Soviet Union, lines that revolve around energy. In the days of the Soviet Union, energy had no monetary value and it was a tool of the state. The opposite is now dominant as energy is largely a commercial matter with all states seeking to acquire the oil and gas necessary for its citizen's basic needs. Both Canada and Denmark have similar problems either in the production of energy in the Arctic or negotiating the international agreements that will govern the process. Canada has a growing environmental awareness that will bear on their activities in the Arctic. Canadians are alert to the potential costs of an environmental disaster in the region either because of increased maritime transit or in the production of offshore oil or gas. In early September this year, developments putting the Arctic at risk via transport have caused a domestic outcry for the preservation of the Arctic and the protection of the High North from the reaches of commercial activity and international transportation. A vessel, the MV Nanny, carrying 9.5 million liters of diesel fuel ran aground on a sandbar that was not listed on current navigation charts in the Northwest Passage. The MV Nanny had the accident in the Simpson Strait on its way to Taloyoak, a Nunavut community in northern Canada. In the month of August alone there were three instances where ships, two oil tankers and one Arctic cruise ship, have run aground and become disabled on sandbars. Arctic charts are reliable – "the problem is that you have to be able to stay within them; it's very narrow', says Waguih Rayes who is the general manager of the Arctic division of Desgagés Transarctik's, a Canadian Arctic shipping giant. If routes like the Northwest Passage are to become commercial transit routes, what needs to be done to minimize shipping accidents? Denmark has its own environmental issue with concern being expressed about its drilling for oil on its west coast. These issues will all be taken up later in the paper.

[3] Leonard, Whitney, Five Alternatives that Make More Sense than Offshore Oil, Carnegie Endowment for International Peace, October 2009. pp.2.

The United Nations Convention on the Law of the Sea-UNCLOS

One of the key tools governing maritime issues in the Arctic is the United Nations Convention on the Law of the Sea. Created in 1982, the United Nations Convention on the Law of the Sea (UNCLOS) captures the past, present and future by learning from international relations problems and conflict of the past to create a universally accepted order for ocean territories that's importance rivals the United Nation's charter itself.[4] Article 76 of UNCLOS is especially relevant because of the ongoing claims and rapidly approaching deadlines for some states to present their scientific research to the United Nations. The purpose of these claims for the United Nations is to inform determinations of the extension of coastal states' submerged continental shelves who hope to extend ocean borders and exclusive economic zones an additional 200 nautical miles. The United Nation's Convention on the Law of the Sea states in Article 76, paragraph 1, that 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, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.[5] This issue is important because UNCLOS goes on in Article 77, paragraph 1, to confirm that the coastal state has the power to explore and exploit the natural resources on its continental shelf because an approved UN claim gives sovereign power to coastal states to do so.[6] Paragraph 2, of Article 77, continues in establishing states' resource rights under UNCLOS whereby that territory belonging to a state is that state's alone. If the state does not explore the continental shelf in its region according to UNCLOS, the region in question is not available to be explored by any other state. This ensures that if a state does not seek resource exploitation in their sovereign ocean, external actors cannot conduct exploration and exploitation of the resource base in question.[7] The legal justification for UNCLOS is needed and all Arctic coastal states have ratified the treaty except for the United States who nonetheless applies the UNCLOS provisionally. The United Nation's Convention on the Law of the Sea establishes a rules-based system to control the exploitation of the ocean's and seas along with their limited resources. Further-

[4] Prows, Peter, Tough Love: The Dramatic Birth and Looming Demise of UNCLOS Property Law (and What Is to Be Done About It), Texas International Law Journal, 2007. pp.2.
[5] UNCLOS, Article 76, Paragraph 1, Definition of a Continental Shelf.
[6] UNCLOS, Article 77, Paragraph 1, Rights of the Coastal State over the Continental Shelf.
[7] UNCLOS, Article 77, Paragraph 2, Rights of the Coastal State over the Continental Shelf.

more, it was the inadequacy of previous systems and traditional methods that led to the establishment of a legitimate system of property rules, backed by an international convention and collective agreement.

One major problem yet to be resolved by UNCLOS is the increasing number of overlapping claims in the Arctic, where some regions of the High North are presumed to hold more resources than others, thus becoming more desirable. States that do not have a direct claim through UNCLOS with either an overlapping claim or legitimate link, have no standing under law to intrude in international waters.[8]

Appendix 1 (Maritime Jurisdiction and Boundaries in the Arctic Region - IBRU, Durham University)

Agreed Maritime Boundaries

- Canada-Denmark (Greenland): continental shelf boundary agreed 17 December 1973.
- Denmark (Greenland) - Iceland: continental shelf and fisheries boundary agreed 11 November 1997.
- Denmark (Greenland) – Norway (Jan Mayen) continental shelf and fisheries boundary agreed 18 December 1995 following adjudication by the International Court of Justice.
- Denmark (Greenland) – Iceland – Norway (Jan Mayen) tripoint agreed 11 November 1997.
- Denmark (Greenland) – Norway (Svalbard) continental shelf and fisheries boundary agreed 20 February 2006.
- Iceland – Norway (Jan Mayen) fisheries boundary following the 200 nm limit of Iceland's EEZ agreed 28 May 1980; continental shelf boundary and joint zone agreed 22 October 1981.
- Norway – Russia maritime boundary in Varangerfjord partially delimited 15 February 1957 and extended 11 July 2007.

[8] Prows, Peter, Tough Love: The Dramatic Birth and Looming Demise of UNCLOS Property Law (and What Is To Be Done About It) Texas International Law Journal, 2007. pp.18.

- Russia – USA single maritime boundary agreed 1 June 1990.

Overlapping claims still remain a troublesome area for the Arctic states and UNCLOS as few have been resolved other than the recent Russian-Norwegian agreement in the Barents Sea. This agreement remains unclear as both countries maintain very different views about the time frame for its implementation in regards to fishing and petroleum exploration. This topic is discussed below in more detail. A territorial claim between Canada and Denmark for the right of ownership to Hans Island remains an intense issue domestically for both countries. Furthermore, Canada and the United States are still at odds over the Beaufort Sea off the Alaska and Yukon coasts respectively. The Canadian claim is based on a border drawn vertically through the sea following the Alaska-Yukon land border. On the other hand, the United States promotes a territorial claim based on equidistance where the sea border tends to shift east. The main point in the disagreement between Canada and the United States over the Beaufort Sea is a 6,700 square nautical mile territory that is potentially rich in hydrocarbons.[9] Each of the Arctic countries has drawn straight baselines except for the US. The US and Canadian dispute that is focused on the Beaufort Sea can be resolved. The North American Free Trade Agreement, or NAFTA, substantially reduces the economic risks of a drawn-out disagreement. The common energy market within NAFTA is a tool that should be used for further negotiation and establishment of a commercial petroleum resource area.

Appendix 2 (Page 33.National Maritime Claims to the Arctic, Ocean and Polar Affairs US State Department)

Areas of Dispute

Canada-Denmark (Greenland)

- Sovereignty of Hans Island
- EEZ (South of Alert), EEZ and Continental shelf (North of Alert)

Canada-U.S.

- Territorial Sea, EEZ, and ECS in Beaufort Sea/Arctic Ocean

Denmark (Greenland)-Norway (Svalbard)

- EEZ

[9] Van Pay, Brian, National Maritime Claims in the Arctic, Office of Ocean and Polar Affairs, US State Department, 21st May 2009. pp.23.

Norway-Russia

- EEZ and Continental shelf

Areas of Agreement

Canada-Denmark (Greenland)

- Continental shelf, 1973 treaty

Denmark (Greenland)-Norway (Svalbard and Faroe Islands)

- EEZ, 1979 treaty
- EEZ, 1993, ICJ decision

Norway-Russia

- Territorial Sea, 1957 treaty
- Barents Sea Accord, 2010

U.S.-Russia

- Territorial sea, EEZ, continental shelf, 1990 treaty

International Players

The five powers that have an interest in the Arctic and a legal basis based on their geographic location are Canada, Denmark (Greenland), Norway, Russia, and United States. (Arctic Five)

Canada: 'Use it, or Lose it'

Canada has long seen itself as the rightful heir to the land and resources of the Arctic. It is no coincidence that in Canada's national anthem one of the last stanzas includes the line, 'true north strong and free'. The Arctic is a symbol of being Canadian. Canada has regarded Russian public relations campaigns like the 2007 flag planting under the North Pole with alarm. Canadian Foreign Minister Peter MacKay before he was appointed Defence Minister criticized the Russian ploy stating that, ''this isn't the 15th century; you can't go around the world and just plant flags and say, 'we are claiming this territory''.[10] Yet political public relations are never straight-forward. Canada has had its own flag planting ceremony on Hans Island, a small piece of land that is currently a hot topic of dispute between Canada and Denmark. Situated in the Kennedy Channel between Greenland and Ellesmere Island, 3 square kilometers of uninhabited rock, Hans Island is causing a major political dispute between Canada and Denmark. As Hans Island is situated at the entrance of the Northwest Passage, it is essentially the gateway into the highly sought after transnational ocean route of the future.[11]

Canada has taken steps to promote itself as a regional economic power, if not a world resource power through its new policies towards the Arctic. Canada's Northern Strategy initiated the 2030 Northern Planning Process to reshape Canada's Arctic policies with investments in infrastructure being the core.[12] Canada's Northern Strategy is a comprehensive policy guide that is set to challenge any attempt by other members of the Arctic Five or beyond – to increase

[10] Kefferputz, Roderick, On Thin Ice? (Mis)interpreting Russian Policy in the High North, European Policy Studies, February 2010. pp.4.
[11] Heubert, Rob, The Return of the Vikings: New Challenges for the Control of the Canadian North, Starshell, Vol. VII, No. 21, 2002-2003. pp.11.
[12] S.Yalowitz, Kenneth, James F. Collins, and Ross A. Virginia, The Arctic Climate Change and Security Policy Conference, Carnegie Endowment for International Peace, 1-3 December 2008. pp.16.

their influence. The Northern Strategy is designed to strengthen Canada's sovereignty through an integrated approach by addressing Canada's environmental heritage, promoting economic and social development and improving northern governance all in hopes of giving power to northern communities to sustain growth in the Arctic.[13] To understand Canada's approach to the Arctic the four major themes need to be addressed.

Exercising Canada's Arctic Sovereignty

One of Canada's defining assumptions in the Arctic is that Canadian sovereignty in Canada's northern region is under threat from outside actors. Clearly, rogue states are not blindly announcing land and resource seizures, but rules and principals are at stake. The Ilulissat Declaration of May, 2008 underlined this point where ministers and high level representatives of the five Arctic coastal states, Canada, Denmark, Norway, the Russian Federation and the United States of America, met in central West Greenland and reaffirmed their commitment to the existing legal framework of international co-operation. The areas of focus during this high level meeting were the United Nations Convention on the Law of the Sea and overlapping claims as well as the willingness of each state to participate in institutions like the Arctic Council and other relevant international institutions.[14] The Canadian government is addressing the issue of sovereignty by promoting its ability to act in the North, participate in building and investing, and the creation of a functioning northern region. In August 2007, the Canadian government announced that investments included the establishment of a Canadian Forces Arctic Training Center in Resolute on Cornwallis Island in Nunavut, a twenty-five percent expansion of the Canadian Rangers Program, to recruit Inuit northern reservists; Arctic/Offshore Patrol vessels, a new Polar Class 3 icebreaker and deep water port in Nanisivik on the northern coast of Baffin Island; the RADARSAT-2 satellite for monitoring and mapping – a state of the art satellite launched just last December; and, the forthcoming issuance of offshore oil and gas rights in the Beaufort Sea. All of the investments by Canada went along with the Ilulissat meeting as the main focus was in establishing a functioning northern region with sustainable communities. These investments are expected to advance that objective.

Economic and Social Development

Economic and social developments are central to Canada's Northern Strategy. The Arctic region under this new agreement is set to acquire the following investments from the Canadian government.

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[13] Kozij, John, Canada's Northern Strategy, Canada's and Europe's Northern Dimension, *Speech from the Throne, 16 October 2007.* pp.1.

[14] Kozij, John, Canada's Northern Strategy, Canada and Europe's Northern Dimensions. 2007. pp.3.

Appendix 3 (Promoting Canada's North- canada.gc.ca/home.html)

- $50 million to establish CanNor (the economic development agency of the north)
- $90 million for the renewal of the Strategic Investments in Northern Economic Development program
- Investing $100 million in geo-mapping in the North to inform and guide the private sector in its mineral and petroleum exploration efforts
- Issuing $1.8 billion in the offshore oil and gas exploration licenses in the Beaufort Sea
- Negotiating basin-opening financial support for the Mackenzie Gas Project
- Providing $37.6 million in support of environmental assessments, regulatory co-ordination, science, and Aboriginal consultations related to the Mackenzie Gas Project

These projects do not represent all investment under Canada's Northern Strategy. However the projects listed above demonstrate the intent to create the necessary infrastructure for the Arctic. Specifically, the investment of $100 million in private sector exploration increases the opportunity for economic clusters in Canada's North. Whole communities will gain from local markets created through resource harvesting, thus creating more stable and sustainable regional economies. For example, seal goods could be such a developing staple industry in the Arctic, whether this is a globally accepted good is not the question. An increase in federal funding has been allocated from the 2008 budget for important seabed mapping activities in Northern Canada. Canada will provide it's submission to the United Nations Commission on the Limits of the Continental Shelf by its projected deadline of 2013 and this submis-sion will help provide Canada with a defined role in the Arctic by creating certainty over the extent of its boundaries.[15]

Protecting the Arctic Environment

There has been a growing movement within Canada over the last two federal elections that have seen environmental concerns moving to the forefront. The Green Party of Canada has enjoyed a steady growth in support since the federal election in 2000 - due mainly to

[15] Kozij, John, Canada's Northern Strategy, Canada and Europe's Northern Dimensions. 2007. pp.4.

public awareness of environmental problems and climate change. This increased support has not translated into federal seats, but support of Canadian environmental issues is contributing to the influence the Green Party of Canada holds in national politics. These issues have been seen in Canada as a 'green shift' where energy conservation and awareness of issues like recycling, decreasing ones carbon footprint and sustainability are all receiving attention in the public sphere. This green shift has not been limited to Canada, but is part of increasing global awareness that has found its way into current Canadian Arctic policies. Under the guidance of Canada's Northern Strategy, and responding to pressure from Canada's internal green shift, steps have been taken to ensure environmental responsibility is harmonious with the other three pillars.

Appendix 4 (Canadian Government Website - Promoting Canada's North)

- $156 million, the largest single country investment, for International Polar Year

- Committing to establish an Arctic Research Station, including $2 million to support a feasibility study for the research station and $18 million over five years to commence the preconstruction design phase (Budget 2010)

- $85 million to upgrade the existing network of Arctic research infrastructure

- Signing a memorandum of understanding with the United Kingdom for co-operation in polar research activities

- Supporting the Health of Oceans initiative

- $5 million to conduct a feasibility study as part of the creation of a new national marine conservation area in Lancaster Sound, at the eastern entrance of the Northwest Passage

The Arctic is gaining attention due to increasing concern about the thinning of sea ice, decreased multi-year ice, thawing of the permafrost, coastal erosion and greater variability in weather and climate. What will these phenomena mean for environmental adaptation, shipping, industrial development, and global climate change? In regards to shipping, Canada's Northwest Passage is an example of the ongoing tension between Canadian concern about its environment and global interest in shipping. If only commercial interests were considered, using the Northwest Passage would be evaluated for saving international shipping companies an estimated thirty-five percent on a voyage between Europe and the Orient compared to

taking the Panama Canal or trekking around Cape Horn.[16] Transit and shipping will be discussed in greater depth later in the paper, however, it is important to note why some of the policies above are included. Canadian investment in the Arctic, specifically investment involved with preserving the Northwest Passage, increases Canada's assertive power and control in the region by establishing the needed infrastructure to exercise sovereignty.

Improving and Developing Northern Governance

Most Aboriginal groups in the three territories of Nunavut, Northwest Territories and the Yukon have reached agreements on land claims and self government while holding both surface and subsurface rights over their lands. This section of Canada's Northern Strategy seeks to strengthen all previous chapters including the exercise of sovereignty, promotion of economic and social development, and protection of the Arctic environment. With stable governance in Canada's Arctic region and the proper long-term investment by the Canadian federal government, Canada's North will have the opportunity to become self sustaining through new economic activity, business opportunities and institutions. Canadian Arctic communities will be encouraged to initiate clusters, inter-related industries and institutions that mutually reinforce and enhance competitive advantage by acting as each other's consumers, competitors, partners, suppliers and sources.[17] This internal dynamic will create stronger northern industries capable of withstanding the pressures of global markets and help promote self-sustaining Canadian Arctic communities.

First Nations in Canada's North

A key to Canadian claims in the Arctic is the full cooperation of the Inuit in the High North. Even though their way of life differs greatly from many other Canadians, the Inuit remain an integral part of Canada's North. The Inuit Circumpolar Council, which unites the Inuit of Greenland, Canada, Alaska and Russia, provided impetus to the negotiation of the 2001 Stockholm Convention on Persistent Organic Pollutants. The participation of Aboriginal groups helped bring the Arctic and its climate change challenges to the very forefront of politics and society, Arctic food for thought.[18] Together with land claims, most notably the 1993 Nunavut Land Claims Agreement, law-based systems are becoming prominent in Canada's Arctic region. This is extremely positive as this increased investment in the region by the Canadian federal government via its Northern Strategy will provide infrastructure and greater business opportunities. Nunavut,

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[16] S. Birchall, Jeff, Canadian Sovereignty: Climate Change and Politics in the Arctic, Vol, 59, Issue, 2, 2006. pp.3-4.
[17] Singh, Indira, Industry Clusters: The Government Role, Canadian Government Executive, June/July 2005. pp.26.
[18] Byers, Michael, Pax Arctica, Global Brief, 19 February 2010. *http://globalbrief.ca/blog/2010/02/19/pax-arctica/*

with eighty-five percent of the local population being Inuit has effectively established an Inuit self government and with this has increased the status and role of the indigenous people in Canada's Arctic.[19]

Along with growing investment and a growing political system in Canada's North, security is quickly becoming another important aspect of First Nation participation in the quest for Canadian Arctic sovereignty. The Canadian Rangers, a branch of the Canadian military, have been used to patrol, train, and promote a Canadian presence in the Arctic for over fifty years. Dr. Whitney Lackenbauer, a professor at the University of Waterloo states that

> *"As the 'eyes and ears' of the Canadian Forces in the remote regions of the country, this predominantly Aboriginal military formation 'shows the Canadian flag' on a daily basis and has expanded to include a highly successful youth program: the Junior Canadian Rangers. The force has developed a unique, decentralized command structure. This allows for a high degree of community direction that also draws upon diversity and traditional indigenous knowledge-rather than adhering to an orthodox military model prescribing assimilation and acculturation of members."*

Presently there are around 4,000 members of the Canadian Rangers, most of whom are Inuit, spread over 165 different communities. The number of Rangers is planned to be expanded to 4,800 in the near future. The 3,800 Junior Canadian Rangers aged between 12 and 18, are seen as cadets, while at the same time providing a network for youth in the region.[20]

Canada's Arctic Rangers provide a special institution that lends strength to Canada's Arctic sovereignty claim. Whatever the future holds for the Arctic, domestic and international cooperation on numerous factors such as business, politics and environment will be essential. The Canadian Rangers are a shining example of internal cooperation across cultures which have interests in Canada's Arctic.

Greenland/Denmark

Greenland is accused of adopting a so called 'double climate strategy' as it seeks to protect the environment and reduce greenhouse gases while also wanting to achieve greater economic independence from Denmark by exploiting their raw resources and promoting large

[19] Byers, Michael, Pax Arctica, Global Brief, 19 February 2010. *http://globalbrief.ca/blog/2010/02/19/pax-arctica/*

[20] CBC News, The Rangers: Guarding sovereignty in remote coastal, northern regions, http://www.cbc.ca /news/background/cdnmilitary/rangers.html, 10 April 2007.

scale industries.[21] Greenland is involved in a long standing battle to attain full independence from the Kingdom of Denmark; however, Greenland and its roughly 58,000 citizens have yet to achieve full independence. Considerable progress has been made and self-rule has been achieved following a referendum in November 2009, although Denmark still has the final say in defense and foreign policy. Denmark has adopted a defense plan for the period between 2010-2014, which includes, similar to other Arctic states, the establishment of an Arctic military command structure and task force capable of operating all over the Arctic region.[22] Every member of the Arctic Five has increased military spending to gain operational capabilities in the Arctic. The question becomes whether this is for the peaceful promotion of sovereignty or for a more aggressive approach by member states to control the northern regions. The media and some academic experts on international relations claim that the military build up and increased Arctic defense capabilities for states could well end in conflict. However, those directly linked to the talk's process, ministers and government officials, are reiterating that cooperation and compromise are still at the top of the agendas.[23]

Greenland still has hopes that final sovereignty from Denmark will be achieved through the economic independence gained by exploiting the numerous riches off its coasts. The majority of raw resources that Greenland does have within its territories consisting of diamonds, oil and gas have, in the past, been inaccessible due to climactic conditions and ice cover.[24] However, studies have shown that climate change is altering the accessibility of these resources making it easier to access the long frozen riches of the North. Global warming is gradually changing the world's weather. Sea ice is melting at record levels with as much as a fifteen percent reduction of the total size every decade in recent years.[25] This is a relatively new phenomenon and in the summer of 2008 the Arctic region was nearly sixty-five percent ice-free in summer months. The years between 2007 and 2009 saw the ice cap decrease to 4.3 million square kilometers.[26] With the process of climate change directly affecting

[21] Bjorst, Lill Rastad, The Arctic climate discourses Greenland and the double climate strategies, Climate Change: Global Risks, Challenges and decisions, 2009. pp.2.
[22] Kefferputz, Roderick, On Thin Ice? (Mis)interpreting Russian Policy in the High North, European Policy Studies, February 2010. pp.8.
[23] Arctic Focus, Denmark plans on increasing Arctic presence, http://arcticfocus.com/2009/07/28/denmark-plans-on-increasing-arctic-presence/, 28 July 2009.
[24] BBC News, Self-rule introduced in Greenland, http://news.bbc.co.uk/2/hi/8111292.stm, 21 June 2009.
[25] S.Yalowitz, Kenneth, James F. Collins, and Ross A. Virginia, The Arctic Climate Change and Security Policy Conference, Carnegie Endowment for International Peace, 1-3 December 2008. pp.9.
[26] Tandong, Yao, Richard Armstrong, Robert W. Corell, Dorthe Dahl Jensen, Kenrick R. Leslie, Andres Rivera, Jan-Gunnar Winther, Melting snow and ice: A call for action, Center for Ice, Climate and Ecosystems, Norwegian Polar Institute, Polar Environment Center, 14 December 2009.

Greenland, an increased ability to harvest its own Arctic resources would help free Greenland of the large subsidies from the Danish government which provide thirty percent of Greenland's gross domestic product.[27]

Greenland Drilling (Canada's Contention)

A direct result of the melting polar icecap in the Arctic is a post modern gold rush centered on oil and gas off the west coast of Greenland. Cairn Energy, a Scottish based company, will be the first to explore the potential of Greenland's offshore resources. The U.S. Geological Survey did a study 1998 that found Greenland's waters could potentially hold one-third of the Arctic's total hydrocarbon stores.[28] Questions are being raised about the qualifications of the company being used as Cairn Energy's only drilling experience has been in the much calmer and warmer waters of the Indian Ocean. The problem for Canada is that its waters are contiguous with Greenland at this point. It bears the same risk as Greenland of a drilling accident, yet will not share in any rewards from a successful program. Images of the Deepwater Horizon catastrophe are fresh in the mind of the general public. Because of the domestic pressure within Canada, Canadian officials now have the task of overseeing this drilling process in the Davis Straits, the narrow strip of water separating Greenland's west coast and Canada's Baffin Island. It is hard to deny the risks of drilling in the Arctic and the probable higher costs of environmental problems stemming from an Arctic offshore oil spill. An accident could seriously degrade any atmosphere of co-operation and the chance of identifying a viable regulatory regime for offshore oil and gas work.

In the 1970s, millions of dollars were spent on a project by Environment Canada to simulate an oil spill in the Arctic. The simulated oil spill was not contained as it drifted under icepacks making clear that conventional approaches, dispersants, booms and burning would not work in Arctic waters.[29] It was even stated by an unnamed Canadian federal regulator of Chevron's Orphan Bay drilling that, 'we would be lucky to clean up 5 percent of a spill in the North Atlantic and that natural dispersal might be the best strategy.'[30] This debate rages within Canada as the problem of business versus environment

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[27] BBC News, Self-rule introduced in Greenland, http://news.bbc.co.uk/2/hi/8111292.stm, 21 June 2009.

[28] Beilinson, Jerry, As Lawyers Fight Over the Gulf Moratorium, the Arctic Drilling Continues, http://www.popularmechanics.com/science/energy/coal-oil-gas/bp-oil-spill-and-arctic-drilling-rush, 24 June 2010.

[29] Butts, Gerald, An Arctic spill would be even worse, The Globe and Mail, http://www.theglobeandmail.com/news/opinions/an-arctic-spill-would-be-even-worse/article1599718/, 2010.

[30] Butts, Gerald, An Arctic spill would be even worse, The Globe and Mail, http://www.theglobeandmail.com/news/opinions/an-arctic-spill-would-be-even-worse/article1599718/, 2010.

continues to grow and a new belief by the current federal government that Canada will emerge as an energy giant based on petroleum resources over the next many years provides fuel to the debate. Investment in cross country pipelines, and the increased reservations about and unhappiness with the northern Alberta Oil Sands Project and proposed drilling in Canada's Arctic continue to divide Canadian society. Reports concerning health hazards are changing Canadian minds about the costs of continuing the project in northern Alberta. Erin Kelly and David Schindler of the University of Alberta led a study in water collected near or downstream from the northern Alberta Oil Sands Mining Project that found levels of cadmium, copper, lead, mercury, nickel, silver and zinc exceeded federal and provincial guidelines for the protection of marine life.[31] People located in northern Alberta, downstream from the Alberta Oil Sands Project, have expressed concerns over pollutants entering their water supply. Accusations of the toxic chemicals the oil sands are failing to contain are continually linked to the reportedly higher cancer rates in the region.[32] These examples are but just a few that are creating a dividing line within Canadian public opinion. NGOs are partially responsible for promoting the facts, exaggerated or not in some cases, about recent exploitation attempts directly affecting people's health in negative ways. Will this antibusiness sentiment have an effect on current and future Canadian federal policies towards the Arctic? It is highly probable that the rise of green politics, recent environmental disasters in the Gulf Coast and the domestic outcry to stop current projects already underway will shift Canada's 'use it or lose it' campaign. That's not to say the business sector in Canada will stand by and allow this to happen without a fight, nor will many Canadians who see Canada's petroleum industry as important because of the many jobs created. The Petroleum Human Resources Council of Canada situated in Calgary, the center of Canadian based petroleum resource companies and support, released a report in June of 2010 claiming a total of 100,000 new workers will be needed over the next decade in response to activity increases and the replacement of retiring workers.[33] Over the next few years Canadians will face tough decisions and will need to choose whether they want to tie themselves to petroleum based economy in Alberta and potentially the Arctic, or to walk away from it before Canadian society and business becomes intertwined too greatly.

[31] Oilsands mining linked to Athabasca River toxins, CBC News, 30 August 2010, http://www.cbc.ca /technology/story/2010/08/30/oil-sands-athabasca-river.html.
[32] Oilsands mining linked to Athabasca River toxins, CBC News, 30 August 2010, http://www.cbc.ca /technology/story/2010/08/30/oil-sands-athabasca-river.html.
[33] Oil industry labour shortage forecasts, CBC News, 3 June 2010, http://www.cbc.ca/money/story/2010/06/02/oil-industry-labour-shortage-forecast.html.

Norway

Norway finds itself in a favorable position in 2010. Issues have been resolved with old foes and technological advancements are creating a positive future for its energy companies in the High North. In December 2006, Norway presented its High North Strategy and like other Arctic states it had similar goals and outlooks for the Arctic region. Norway's High North Strategy presents seven main political priorities including: exercising authority in a credible, consistent and predictable way; developing knowledge; stewardship of the environment and natural resources; development of petroleum activities; safeguarding the livelihoods of indigenous peoples; developing people-to-people cooperation; and strengthening cooperation with Russia.[34] An important part of this Northern Strategy endorsed and put forward by Norway is that it accompanies a domestic policy dimension that affects all other aspects; it remains paramount to any other measure. The Northern Strategy has been very successful and most of the 22 points addressed in it were either carried out or initiated before the next stage of Norway's High North efforts. The so called, 'New Building Blocks of the North', has a time horizon of ten to fifteen years and could lead to development of northern Norway by providing basic port infrastructure that would be essential to a northern resource economy.[35] The March 2009 presentation of this new plan by Norway to follow up the previous 2006 successful Northern Strategy is not a quick fix political platform, but rather a basis for a dynamic policy in the Arctic for Norway. The seven main political priorities are outlined.

Statoil, the national champion of Norway, is leading the way in technology needed for successful offshore petroleum development in the Arctic. The recent agreement between Statoil and Gazprom on technology sharing and cooperation are, in effect, tied to the developmental phase of the large offshore Shtokman field in the Russian Federation. The developmental cost of the field is estimated between ten and twenty five billion US dollars. If history is anything to judge by it should be safe to say that the final price tag will be at the higher end of the estimate.[36] Currently the Norwegian government holds sixty-seven percent of the Norwegian national energy giant, something that is not programed for change in the near future as Statoil looks to continue its investment in the Shtokman gas field which is presumed to be commercial for upwards of fifty years.

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[34] The Norwegian government's High North Strategy, Norwegian Ministry of Foreign Affairs, 2006.
[35] The Norwegian government's High North Strategy, Norwegian Ministry of Foreign Affairs, 2006.
[36] Shtokman Gas Condensate Deposit Barents Sea, Russia, 2010, http://www.offshore-technology. com/projects/shtokman/.

Appendix 5 (Norway Government Website-Northern Strategy 2009)

- Develop knowledge about climate and the environment in the High North
- Improve monitoring, emergency response and maritime safety systems in northern waters
- Promote sustainable development of offshore petroleum and renewable marine resources
- Promote onshore business development
- Further develop the infrastructure in the north
- Continue to exercise sovereignty firmly and strengthen cross-border co-operation in the north
- Safeguard the culture and livelihoods of indigenous peoples

Barents Sea Agreement

On April 27th, 2010 Norway and Russia agreed on a new solution for delimitation that has been a subject of disagreement in the Barents Sea and an impediment to exploiting its resources for the past forty years. This agreed solution between the two states finally came into effect on September, 15th 2010 after foreign ministers Jonas Gahr Støre and Sergey Lavrov signed in Murmansk, the Treaty on Maritime Delimitation and Cooperation in the Barents Sea and Arctic Ocean. There have been skeptics claiming that institutions like the Arctic Council are obsolete and that there is no need or place for them in the international political spectrum. Yet the Arctic Council, which was established in 1976, is an intergovernmental forum which allows member states to connect and discuss issues that relate to the Arctic. Norway has taken the opportunity for increased dialogue afforded by an institution like the Arctic Council to gain both politically and economically by helping solve difficult issues. It cannot be proven that the Arctic Council facilitated this agreement, but the presence of such institutions is important to international relations. The Barents Sea has been disputed for the last forty years where issues surrounding the protection of fish stocks and control of fishing practices have divided the Norwegian and Russian states.[37] The agreement between Norway and the Russian Federation is a delimitation line that divides the disputed area of 175,000 square kilometers between the islands Franz Josef Land (Russian Federation) and Svalbard (Norway) into

[37] S.Yalowitz, Kenneth, James F. Collins, and Ross A. Virginia, The Arctic Climate Change and Security Policy Conference, Carnegie Endowment for International Peace, 1-3 December 2008. pp.16.

two approximately equal water territories. To go along with the recent agreement on managing fish stocks, both governments pushed for treaty provisions that would make future cooperation on petroleum and hydrocarbon resources easier to achieve.[38]

Fishing

The agreement between Norway and Russia concerning the Barents Sea has not been seen as completely successful in either country. The complex framework of the Barents agreement has left many gaps between policy and action. Previously, the leading institution behind the regulation of fish stocks in the Barents Sea was the Norwegian-Russia Fisheries Commission which met every year since 1976. The institution made up of both Norwegian and Russian fishery authorities had the ability to set total allowable catches of the Barents Seas main fish products. Those fish products primarily being cod, haddock and capelin. However, there is one fundamental problem with the current new agreement that has solved a forty year territorial issue. Jens Stoltenberg and Dmitry Medvedev head two states with very different views of how the Barents Agreement delineation will be enforced – in particular the time in which it will take full effect. This is very important for both sides of the fishing agreement. The timescale of full implementation on the control of fishing and the protection of vital fish stocks is seen quite differently by the two countries. Norway hopes for a quick outcome with implementation within one year. Russia sees this agreement as a useful tool that will take anywhere from ten to fifteen years from ratification to full implementation. The cod and haddock found in the Barents Sea are a multimillion dollar industry for both countries, no matter the outcome, many lives will be affected. This recent agreement between Norway and Russia replaces the Grey Zone Agreement of 1978, a provisional agreement helping foster cooperation between the nations and promote bilateral fishing initiatives in the Barents Sea. The United Nations Third Conference on Law of the Sea, UNCLOS III, created exclusive economic zones. These zones, extending two hundred miles off the coast of a state, were intended to do more than extend coastal boundaries.[39] The Exclusive Economic Zones (EEZs) were promoted by UNCLOS because it was widely perceived, at the time, that they would help resource management. The area in the Barents Sea disputed by Norway and the Soviet Union in 1978 threatened the entire effectiveness of these economic zones. The situation in the Barents Sea was one that needed to be solved by an agreed bilateral approach to the problem mainly because the migrating fish stocks traveled naturally

[38] Norway and Russia agree on maritime delimitation, Barents Observer, 27 April 2010, http://www.barents observer.com/breaking-news-norway-and-russia-agree-on-maritime-delimitation.4778541-116320.html.

[39] Stabrun, Kristoffer, The Grey Zone Agreement of 1978: Fishery Concerns, Security Challenges and Territorial Interests, Fridtjof Nansens Institutt, 2009. pp.10.

between Norwegian and Russian waters.[40] The new agreement on the Barents Sea will be seen as validation for both the Arctic Council and the ability of successful bilateral negotiations primarily based on dialogue and cooperation. New soft power institutions that center on mutually beneficial agreements are promoting cooperation between states and legitimizing regions as dual, not single, entities through joint state actions. History shows that agreements like the one between Norway and Russia are not always successful and only time will tell how the fishing industry in the Barents Sea will react to new legislation and how different views of implementation can be resolved. This will be the next issue resolved by Norwegian and Russian negotiators as the success of the international agreement resides in the ability of their respective fishing sectors to adapt to the new policy.

Petroleum Resources

The Barents Sea is not only strategically important for the protection of fish stocks, but also for the oil and gas fields that are situated in the region. Testing to find these important energy pockets was started by the Soviet Union as early as the 1970s where seismic surveys discovered the Shtokmanovskoye, Ledovoye, and Ludovskoye fields. In the 1980s the first oil and gas exploration licenses were awarded in Norway, leading to the discovery of the Snøhvit gas field in 1984.[41] Recently there has been much debate as to the amount of resources on each side of the new delimitation line dividing the 175,000 square kilometer disputed area of the Barents Sea which separates the islands of Svalbard and Franz Josef Land. Resource assessments of this region indicate that there is between five to six billion tons of oil equivalent in the area - as much as eighty percent of this is in the Russian territory.[42] Within the framework of the St. Petersburg International Economic Forum 2010, Alexander Medvedev, Deputy Chairman and the Gazprom Management Committee and Peter Mellbye, Executive Vice President of Statoil, signed an Agreement on Scientific and Technical Cooperation.[43] Statoil has and will continue to have an increasing role within Russia as a key ally in developing technology helping to exploit petroleum resources in the harsh environments in the North. The main focuses of Norwegian and Russian efforts will be in hydrocarbon production, treatment and transport technologies including equipment for transport and environmental protection. Norwegian companies are at the technological and environmental forefront of responding to drilling problems that arrive with

[40] Stabrun, Kristoffer, The Grey Zone Agreement of 1978: Fishery Concerns, Security Challenges and Territorial Interests, Fridtjof Nansens Institutt, 2009. pp.11.
[41] Gunnar-Austvik, Ole, The Geopolitics of Barents Sea Oil and Gas: the Mouse and the Bear, The International Association for Energy Economies, 2007. pp.19.
[42] Gunnar-Austvik, Ole, The Geopolitics of Barents Sea Oil and Gas: the Mouse and the Bear, The International Association for Energy Economies, 2007. pp.19.
[43] Gazprom and Statoil sign sci-tech agreement, The Norway Post, 19 June 2010, http://www.norwaypost.no/oil-gas/shipping/gazprom-and-statoil-sign-sci-tech-agreement.html.

offshore rigs similar to those being developed in Russia. Norway has achieved a reputation for its leadership in the Arctic through its Innovation and Culture Credits, advancements in mechanization and a serious devotion to health, safety, and environment. Statoil has achieved a substantial reduction in accidents since the late 1980s.[44] Through deeper integration of both national companies and state institutions, Norway and Russia are becoming increasingly aware of their joint interests in market developments.[45] It is quite possible that resource expansion agreements between the two states will increase in frequency in response to the risks and rewards of work in the Arctic. The price of fossil fuels is still relatively low compared to the peak in July 2008, but it is not a stretch to assume that as the price of hydrocarbons increases, so too will the integration between Norway and Russia. More offshore gas and oil fields within the Russian Federation will need to be developed as demand and price increase globally. This situation will inevitably lead to an increased role for Norwegian companies who are specifically involved in the developmental phase of offshore oil fields within the Russian Federation.

Russian Federation

The Russian Federation remains the key factor in the Arctic with its complex institutions in the government and military and with state companies, like Gazprom, that have significant influence in how Russia deals with its northern region. Russian interest in the Arctic is documented as early as the late nineteenth and early twentieth century's. In 1910, Russia sent its navy to explore and map the Northern Sea Route (NSR), which runs along its North Coast.[46] During the industrialization of the Soviet Union, the Arctic became a source of economic development as the Stalin years produced mines in Vorkuta and Norilsk. No longer the Soviet Union, the Russian Federation still views Arctic development and the issue of the Arctic in general as main priorities for the national government.[47] Northern Russian regions have a history of being resource wealthy; however it is not the only history of the region. Military and political problems have also been common in Northern Russia. The Cold War saw submarine action in Arctic waters as well as what seemed to be insurmountable differences between many of the Arctic member states that very nearly promised conflict. In 1987, the first warming of relations started with the Murmansk Initiative, established by Mikhail

[44] Norway Gets Serious About Safety, Offshore Technology, 1 September 2005, http://www.offshore-technology.com/features/feature597/.
[45] Gunnar-Austvik, Ole, The Geopolitics of Barents Sea Oil and Gas: the Mouse and the Bear, The International Association for Energy Economies, 2007. pp.19.
[46] Kefferputz, Roderick, On Thin Ice? (Mis)interpreting Russian Policy in the High North, European Policy Studies, February 2010. pp.3.
[47] Russia's Arctic Ambitions: Transforming the 'Cost of Cold', Institute for Security and Development Policy, No.7, 9 June 2009. pp.53.

Gorbachev, which was a policy to create a zone of peace in the Arctic.[48] Along with this step forward, the Environmental Protection Strategy was created and put into action. The EPS is a non-binding multilateral agreement that promotes environmental practices in the Arctic; this policy was brought into the Arctic Council in 1996.

The Russian Federation has taken a step back in the polar region since the end of the Cold War. The Arctic was never completely abandoned from Russian polices, but new efforts by the Russian Federation to align itself with Western powers took its main focus away from the Russian northern regions. Now, Vladimir Putin made the Arctic a focal point for Russian governmental policies, interests and investment. With the Russian Federations ratification of UNCLOS in 1997, under the leadership of Vladimir Putin, 2001 marked the first legal claim by Russia to expand its reach in the Arctic. Russia planned to extend its exclusive economic zone (EEZ) and gain vast amounts of the Arctic that are thought to hold resource riches in minerals, fish stocks, and the biggest prize of all, oil and gas deposits. In 2001, the submission by the Russian Federation to extend its jurisdiction beyond 200 nautical miles, under UNCLOS, suggested that an additional 1.2 million square kilometers of Arctic territory be placed under the control of the Russian Federation and its exclusive economic zone. The Russian Federation had claimed that the area in question lies between the Lomonosov and Mendeleev Ridges, thus, is a proven continuation of the Siberian shelf.[49] This claim was neither accepted nor rejected, but a request by the United Nations for more information and deeper scientific research by Russia has prompted a flurry of activity in Moscow. Denmark and Canada responded to the claim by refusing to issue a comment on the basis that more information and data was needed. In 2007, Russia ignited a verbal response from many members of the Arctic Council, including Canada, after planting a Russian flag at the bottom of the North Pole. Was this a preamble to high tension tactics to control the Arctic waters and its resources?

In September 2008, President Dmitry Medvedev talked about the importance of the Arctic at a meeting of the Security Council of the Russian Federation. Medvedev stated that twenty percent of Russia's GDP and twenty-two percent of its exports were produced in the Arctic and strongly emphasized the importance that the Arctic holds for the Russian economy as a whole.[50] The third, 'troika', or stage under the 'Strategy towards the Arctic until 2020 and beyond', put forward by Russia in 2009, sees the transformation of the Arctic

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[48] Atland, Kristian, Mikhail Gorbachev: The Murmansk Initiative, and the Desecuritization of Interstate Relations in the Arctic. Cooperation and Conflict, Vol. 43, No. 3, 2008.

[49] Kefferputz, Roderick, On Thin Ice? (Mis)interpreting Russian Policy in the High North, European Policy Studies, February 2010. pp.3.

[50] Sieff, Martin, Russia's growing Arctic Power Play. 6 April 2009. http://www.spacewar.com/reports /Russias_Growing_Arctic_Power_Play_999.html.

into a strategic resource base for the Russian Federation by 2016. The following are initiatives by the Russian Federation to promote its policies and to strengthen its hold over what it believes to be a historical and cultural right over vast stretches of the Arctic and its resources.

Appendix 6 (Translated from Russian: Rossiyskaya Gazeta, March 30, 2009)

National Interests

- Use of the Arctic zone of the Russian Federation as a strategic resource base of the Russian Federation providing the solution of problems of social and economic development of the country

- Maintenance of the Arctic as a zone of peace and co-operation

- Preservation of unique ecological systems of the Arctic

- Use of the Northern Sea Route as a national single transport communication of the Russian Federation in the Arctic (further-the Northern Sea Route)

Appendix 7 (Translated from Russian: Rossiyskaya Gazeta, March 30, 2009)

Objectives and Strategic Priorities of the State Policy of the Russian Federation in the Arctic

- In the sphere of social and economic development-expansion of the resource base of the Arctic zone of the Russian Federation capable substantially to meet the requirement of Russia in hydrocarbon resources, water biological resources and other kinds of strategic raw materials

- In the sphere of military security, defense and protection of the state border of the Russian Federation lying in the Arctic zone of the Russian Federation-maintenance of a favorable operative regime in the Arctic zone of the Russian Federation, including maintenance of a necessary fighting potential of groupings of general purpose armies (forces) of the Armed Forces of the Russian Federation, other armies, military formations and organs in this region

- In the sphere of environmental security-preservation and maintenance of environment protec-

tion of the Arctic, liquidation of ecological consequences of economic activities in the conditions of increasing economic activity and global changes of climate

- In the sphere of information technologies and communication-formation of a uniform information area of the Russian Federation in its Arctic zone taking into account natural specificities

- In the sphere of science and technology-maintenance of a sufficient level of fundamental and applied scientific researches on accumulation of knowledge and creation of modern scientific and geo-information bases of management of the Arctic territories, including working out of means for dealing with defense and security issues, and also reliable functionning of life-support systems and economic activity in the natural-climatic conditions of the Arctic

- In the sphere of international co-operation-maintenance of a mutually advantageous bilateral and multilateral co-operation treatment of the Russian Federation with the sub-Arctic states on the basis of international treaties and agreements to which the Russian Federation is a party

None of the national interests or priorities of Russia's policy towards the Arctic is greatly different from any other member of the Arctic Five. Policy does not act alone, and current investment by the Russian Federation needs to be the driving factor in making Russian policies work.

United States of America

Still the world's largest economy, the United States has considerable interests in the Arctic. Numerous issues surround the United States in its relation to the Arctic ranging from transport to transparent border lines in the Beaufort Sea.

Every member of the Arctic Five has ratified the United Nations Convention on the Law of the Sea excluding the United States. The group that is largely behind, but not solely responsible, for the United States not ratifying UNCLOS is a small group of conservatives in government. Similar to what was stated earlier; this specific group of policy makers sees UNCLOS as a limit to U.S.

sovereignty and an obstacle in controlling U.S. offshore resources.[51] There is not a general consensus in the U.S. for rejecting UNCLOS as there is strong support from US academicians and corporations to adopt UNCLOS as it would be beneficial in the future. Criticisms of UNCLOS by Republican Senators James Inhofe and David Vitter are based also on the fear that the United Nations will limit the capacity of the US Navy, thus increasing the suspicion of a ratified treaty.

The United States is accused of falling behind in Arctic participation and effectiveness because of the Beaufort Sea dispute with Canada and the non-ratification of the United Nations Convention on the Law of the Sea. The main issue blocking US ratification is the strong sense of nationalistic sovereignty, thus many believe keeping the United States from benefiting in the strategically important agreement negatively effects dispute resolution over territories and potential resources. It's not to say that ratification needs to be done before an agreement can be reached over the Beaufort Sea, but ratification would increase the effectiveness of the United States in participating in Arctic development. Gaining the ability to submit territorial claims under UNCLOS would increase the power and influence of the US in the Arctic, and its bargaining power with other Arctic Five states. Canadian and American relations have not significantly suffered because of the disagreement over a boundary line in the Barents Sea, but neither have they flourished. The disagreement over the boundary line in the Beaufort Sea is between a Canadian straight line extension from the Alaska-Yukon border running out into the Beaufort Sea whereas the United States favors a line equidistance based on adjacent points of land. This principle would increase the territory gained by the United States in any agreement with Canada. There is a lot at stake for both Canada and the United States in this regard while in the meantime potential resources lack a clearly defined owner. As with all such disagreements between the US and Canada, when the pressure builds for a resolution, the issue will move onto the bilateral agenda.

Transport (Northwest Passage/Northern Sea Route)

Northwest Passage

The dream of a Northwest Passage is becoming a reality with decreased ice cover during the summer months. Such a Passage would provide a viable alternative to those passing through the Panama Canal.[52] Like the Northern Sea Route claimed by the Russian Federation, the Northwest Passage is a commercial transport dream, shortening transit and providing greater access to world markets. The problem remains that the Northwest Passage is

[51] Mills, Betty, Arctic Challenges May Prompt US to Ratify UN Convention on the Law of the Sea, Fairbanks News, unlawofthesea.com, 22 January 2009, unlawofthesea.worldpress.com.

[52] E.J. Currie, Duncan, Sovereignty and Conflict in the Arctic Due to Climate Change: Climate Change and the Legal Status of the Arctic Ocean, 2007.

frozen for the majority of the year, and even the summer months are dangerous with floating ice and other risks such as shallow sandbars. The Northwest Passage would shorten travel between Europe and Asia by 7,000 kilometers. Shippers are already putting pressure on Canada to ease restrictions and promote the Northwest Passage as a viable option to the Panama Canal. The Northwest Passage is a series of seven channels, however only five are considered navigable for large shipping tankers which would make up the bulk of future commercial transport. Furthermore, with the invigorated focus on Arctic raw materials, waterways in general will become topics of much higher economic and political priority.

The Arctic is a growing policy priority with its vast oil reserves and strategic sea routes for maritime commerce.[53] The Northwest Passage moves though areas of Nunavut, a Canadian territory in the Arctic with waters full of risks to transport. The issue is whether this waterway will be classified as internal waters like the Canadian government wishes, or if the waters will become international. Canada is currently operating under the precept that the Northwest Passage is internal waters and therefore regulated by the Nordic Energy Regulators (NORDREG) - a registration system that is controlled and maintained by the Canadian Coast Guard.[54] The Canadian governments assertion of sovereignty over what it sees is internal waters, is being challenged by international maritime companies. The Baltic and International Maritime Council (BIMC) which controls two-thirds of global shipping tonnage have been very vocal in criticizing the new Canadian legislation. In March 2010, the IMC sent a letter to the Canadian federal government stating that innocent passage could be violated under this new legislation.

Reinforcing transnational companies' challenges are a number of countries who question Canadian sovereignty over the Northwest Passage. Along with its decision to apply Arctic environmental legislation up to 370 kilometers from its coast, Canada has doubled the extent of the jurisdiction of the Water Pollution Prevention Act. The current disagreement between Canada and the United States is a result of Canada's claim that the Northwest Passage is an internal waterway. This assertion would give Canada the right to accept or reject for, any reason, any ship that wishes to enter the Northwest Passage. The United States views the Northwest Passage as an international strait, thus gaining direct access to the Northwest Passage for shipping and transit purposes.[55] The main argument of the United States is that the channels in the archipelago that form

[53] Perry, Michael, Rights of Passage: Canadian Sovereignty and International Law in the Arctic, University of Detroit Mercy Law Review, 2006.
[54] New Northwest Passage rules may violate international law, CTV News, 17 October 2010, http://www.ctv.ca /CTVNews/Canada/20100709/arctic-rules-law-100709/.
[55] Charron, Andrea, The Northwest Passage Shipping Channel: Sovereignty First and Foremost and Sovereignty To The Side, Journal of Military and Strategic Studies, 2005.

sections of the Northwest Passage through the Arctic should be defined as an international navigational strait under part III of UNCLOS, conferring a right of transit passage for foreign ships.[56] With these arguments unresolved, the future of the Northwest Passage will remain in question. No country, including the United States has claimed ownership of the Northwest Passage or the resources below the surface. It is agreed that these belong to Canada. The Arctic Archipelago and Northwest Passage are important to Canada's sense of identity. Any threat to Canadian sovereignty over the Arctic or its transit routes will be challenged as firmly as would be a foreign claim on the Canadian Rockies.[57]

Legal debates have dragged on and yet there have been numerous occasions for Americans to use the Passage. For the Canadian government, and the vast majority of Canadians, the Northwest Passage is a point of contention with the US. In 1969, the tanker USS Manhattan tested the Northwest Passage to see if it was commercially viable for transit of oil. Neither the Manhattan nor the US government asked permission from the Canadian government for the voyage. Since that passage, the Canadian government imposed environmental regulations for all trips through the Northwest Passage. The Canadian-US standoff continued until 1985 when a US Coast Guard icebreaker Polar Sea sailed the Passage again without asking the permission of the Canadian government. Considered a direct challenge to Canada's claim to the Northwest Passage, Prime Minister Brian Mulroney and US President Ronald Reagan implemented a mutually beneficial agreement to strengthen relations between the two North American nations.[58] The Arctic Co-operation Agreement signed in 1988 between Canada and the United States was in direct response to the Northwest Passage standoff on US access to the route. The basic outline of the 1988 agreement states that the US would no longer send icebreakers into and through the Northwest Passage without the consent by the Canadian government. In return the Canadian government would always give consent.

Appendix 8 (Government of Canada/Government of the United States of America)

- The Government of Canada and the Government of the United States of America recognize the particular interests and responsibilities of their two countries as neighboring states in the Arctic.

[56] Maritime Jurisdiction and boundaries in the Arctic region, IBRU International Boundaries Research Unit, Durham University, 2007. pp.3.
[57] R. Rothwell, Donald, The Canadian-U.S. Northwest Passage Dispute: A Reassessment, Cornell International Law Journal, Vol.26, 1993.
[58] In Depth Northwest Passage: The Arctic Grail, CBC News, 8 August 2006, http://www.cbc.ca/news/background/ northwest-passage/.

- The Government of Canada and the Government of the United States also recognize that it is desirable to cooperate in order to advance their shared interests in Arctic development and security

- The Government of the United States pledges that all navigation by U.S. icebreakers within waters claimed by Canada to be internal will be undertaken with the consent of the Government of Canada

The Polar Sea issue tested the legitimacy of the United Nations Convention on the Law of the Sea (UNCLOS) Article 234, which confirms what is known as the 'Arctic exception.'[59] As recently as November 2005, an American nuclear submarine, USS Charlotte, again created tension within Canada. Some important international issues between Canada and the US remain unresolved, threatening Canada's claims in the Arctic that include resources and the control of the fabled Northwest Passage. Resolving these issues will affect any Canadian offshore resource where there remains a foreign element or influence.[60] Michael Byers, Canada's research chair in global politics and international law at the University of British Columbia, goes on to claim that oil and gas resources off the Queen Elisabeth Islands could be at risk if foreign operations are continuously underway in Canadian waters.

The relations between Canada and the US over the Northwest Passage are still in the works and both governments are faced with the task of finding a successful agreement based on international relations. Agreements resolving more than one issue would be best for both transport and commercial shipping. Recent pressure by the US government on the Canadian government appears to be driven by concern that the Northwest Passage could serve as a door for terrorists to enter Canada and eventually cross the border into the United States. If the Northwest Passage is recognized as an international strait, any ship could make the voyage and would not need the consent of the Canadian government as long as the transits were continuous. This possibility poses the risk of terrorists and illegal aliens landing on the shores of North America - a risk Washington would want to avoid. So the issues surrounding the Northwest Passage are no longer limited to resource exploitation and transport, although they remain paramount. Security is quickly gaining importance and political attention. National security is a major concern in the United States and experts ranging from Leon Panetta, the head of the CIA, to the current Secretary of State Hillary Clinton have stated that climate change in the Arctic region could pose a national security

[59] Zorzetto, Alicia, Canadian Sovereignty at the Northwest Passage, ICE Case Study, No. 185, May 2006.
[60] U.S. sub may have toured Canadian Arctic Zone, The National Post, 19 December 2005, http://www.canada.com /nationalpost/story.html?id=fb21432a-1d28-415e-b323-ceb22d477732&k=69493. *Michael Byers Interview with the National Post.

threat to the United States.[61] Robert Huebert, an international relations professor at the University of Calgary says, 'the U.S. will never come out and publicly accept our position, but the more that we work and prove our ability to control the Northwest Passage, the more comfortable the Americans will be with our position.'[62]

Northern Sea Route

One of the most powerful tools Russia holds in the Arctic zone, aside from its petroleum resource base, is the Northern Sea Route. The Northern Sea Route has for many years teased Europeans and commercial transport companies with its enormous potential to revolutionize sea trade between Europe and East Asia.[63] With projected ice free summers as early as 2015, transport is taking focus away from raw resources for the potential net gains of shorter travel between suppliers and their markets around the world. The Northern Sea Route has yet to achieve the status of a major commercial trade route because of a major lack of suitable infrastructure and the major issue that some NSR passages do not exceed seventeen meters in depth. This is dangerously shallow for large vessels and remains a prominent reason why the NSR commercial navigation potential is still in question.[64]

Russia has successfully laid claim to the Northern Sea Route under Article 234 of UNCLOS. Through this legal claim, the Russian Federation has been able to invest in the region knowing that it has complete control over the NSR and that what comes of the region will be 'mainly' Russian. UNCLOS 234 states that coastal nations have the right to unilaterally enforce non-discriminatory rules and regulations in their respective exclusive economic zones. This is particularly important where there is floating ice and other major obstacles and risks associated with transport where severe conditions can cause major problems for navigation and stand to cause major harm to the region.[65]

The Russian Federations hold over the Northern Sea Route is strengthened by its icebreaking capabilities. Russia has the largest fleet of icebreaking vessels; the main purpose for these vessels today and in the past has been logistic support to Arctic communities. If the Russian Federation lost its ability to supply isolated communities in

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[61] Goodman, Lee-Anne, Arctic a growing security issue for U.S., The Star, 12 January 2010, http://www.thestar.com /news/canada/article/749795--arctic-a-growing-security-issue-for-u-s.
[62] Goodman, Lee-Anne, Arctic a growing security issue for U.S., The Star, 12 January 2010, http://www.thestar.com /news/canada/article/749795--arctic-a-growing-security-issue-for-u-s.
[63] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.4.
[64] Kefferputz, Roderick, On Thin Ice? (Mis)interpreting Russian Policy in the High North, European Policy Studies, February 2010. pp.5.
[65] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.6.

the North, the Russian Federation would not have the capability to promote its sovereignty to its claimed Arctic territory. It is known that throughout the 1980s and early 1990s, interest in the Northern Sea Route was in decline due to a lack of infrastructure, more pressing Soviet priorities and a lack of knowledge about the NSR. However, this has changed with the rise of two actors who will play a role in the development of the NSR for many years. First, the rise of business in northern Russia has created an economic power base around raw resources. What are arguably new factors to the Russian Federation are public businesses, like Lukoil, investing millions of dollars on new icebreakers for the Russian Arctic fleet between 1997 and 2002. This resource growth is prompting domestic resource companies, for example Norilsk Nikel, to fund their own fleets of icebreakers. This has the effect of solidifying Russian interests in Arctic resources and control of the Northern Sea Route. Petroleum companies along with other resource based industries in Northern Russia operating in the Barents Sea are investing in icebreakers to service their respective remote installations. Norilsk Nikel is investing into the icebreaker vessels because it increases their autonomy from the Russian state and allows them to act more independently.[66] The second main factor in the future development of the Northern Sea Route is the rise of Vladimir Putin and his new policies on how the Northern Sea Route will be used and promoted. As the Russian Federation adopts policy initiatives that support the movement towards a market economy, companies like Murmansk Shipping and Far East Shipping will become more independent from the state by acquiring the necessary tools, like hull strengthened vessels, to promote their organizational independence.[67]

While notable progress is being made in the ability of Russian companies to work in the Arctic, largely separate from state intervention, other problems exist. While most Russian companies operating between the Barents and Kara Seas are able to ensure their own safe passage, foreign companies wishing to use the NSR are subject to fees and tariffs. Since opening the NSR to foreign vessels in 1991, there has not been a schedule of fees and services established by Russian icebreakers. There are examples of ice strengthened foreign ships wishing to use the Northern Sea Route that do not ask or receive icebreaker assistance, but are still charged as if icebreaker service had been issued.[68] The agreement between Japan, Norway, and Russia in 1993 that prompted the creation of the International Northern Sea Route Program was one of the few instances the Russian Federation has participated in a joint effort to understand and promote the NSR as a viable option for trade. Unreliable fees and

[66] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.5.
[67] Drent, Jan, Commercial Shipping on the Northern Sea Route, The Northern Mariner, Vol.3, Issue.2, 1993. pp.7.
[68] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.6.

tariffs are becoming an impediment for many foreign companies wanting to use the NSR. Without fixing this, the NSR will remain a Russian dominated zone with very little outside international interest. Currently, the Russian Federation and the United States disagree over claims by Russia over the straits within the Russian Arctic archipelagos and Russian mainland. This is an issue that is largely uncontested amongst other states, but its resolution will have relevance for addressing Canadian and American disagreements.

Environmental concerns about increased traffic in the NSR and the sensitive ecosystems that are abundant in the Arctic are visible in Russian policy. The success of strictly enforced environmental regulation is helped by the fact that other coastal member states and political blocks are moving towards international policy rather than individual legislation. Important measures to ensure environmental safety are disqualifying many ships from use in the Northern Sea Route and other Arctic sea lanes. These measures include strict new regulations to promote environmental safety, stricter ice class standards for vessels and the establishment of classification societies and unified requirements for Arctic ships. Furthermore, the enforcement of stricter port regulations will make it harder for ships to cut corners on environmental standards by the inspection of ships before departure and whenever the vessel docks.[69]

The NSR might not become economically viable for some time because of the dangers of floating multi-year ice, unclear fees and tariffs in an unreliable system and the need for increased investment to make ships stronger to deal with Arctic conditions. It is possible that states such as Japan and Norway, who have previously worked with the Russian Federation in mapping and promoting the NSR, will agree to terms where vessels of those states will have special privileges in the NSR. It is impossible to say this for certain at the moment, but it is highly unlikely that the NSR will be a viable option for transport when so many problems and question marks still remain. Currently the average transport per year through the NSR is two million tonnes; this consists mainly of internal Russian transport to the Northern Arctic settlements. The Northern Sea Route is dominated by outward shipments that mainly consist of raw materials like nickel, ore and timber. These outward shipments are equivalent to inbound shipments from the rest of the Russian Federation.[70] A new export route has emerged since 2002 primarily due to oil shipments to Western Europe from Murmansk and some White Sea ports where the oil was shipped to the ports by rail.[71] It is unlikely this will increase the traffic in the NSR greatly in the near future. This is mainly due to the price of

[69] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.6.
[70] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.8.
[71] L. Ragner, Claes, The Northern Sea Route, Norden Association Yearbook, 2008. pp.4.

oil being relatively low compared to the intensive investment that will be required to develop the offshore fields in the Arctic zone. It is the opinion of many experts in the trade and transport field that the Atlantic-Pacific trade routes which are presently being used are not under a great threat from the Arctic option right now. Even if that is the case, there needs to be a regulatory framework preparing the Arctic for what lies ahead. Instead of delaying resolution of environmental concern and business practices, work needs to be done now by coastal states to promote transport and trade. In regards to Arctic shipping routes, policies that are fair, safe and able to promote global cooperation and the highest environmental protocol are needed to avoid shortcuts and potential problems like the disaster off the Gulf Coast in the United States.

Environmental Approach: Critique

To understand national policies by Arctic Five states in relation to the Arctic, one needs to understand those concerned about the possibly dangerous consequences of resource exploration. Dr. Andrew Weaver, a world renowned climatologist who holds numerous awards including a Nobel Prize, has offered a few opinions specifically for this paper ranging from the potential ramifications of Arctic drilling to the increased need for conservation and renewable energy investment by the Arctic Five. This interview was especially relevant to the ongoing issue with offshore drilling on the west coast of Greenland and its potential effects on Canada if there was ever a spill.

First, the question was raised about how a large scale spill would affect the Arctic if the traditional ways to contain a spill were found ineffective. Such traditional methods include burning of surface oil, dispersants and systems to channel the oil like buoys and skimmers. In Dr. Weaver's opinion, a spill in the Arctic would be confined to the surface layers of the ocean and would more than likely hug the coast. The reason for this is because Arctic waters being so stratified. In a surface spill the layers of water and oil will not mix well. The Caribbean for instance sees hurricanes, big winds, mixing and stirring and there is a very salty layer accompanied by a very warm layer. The Arctic is mostly ice covered and in the summers it has a fresh layer on the surface of the exposed region so it's very stable. Oil would concentrate in the Arctic and it would not be able to disperse because of the stratified layers that are specific to the Arctic region. Dr. Weaver continued in stating that the oil from a major spill would not, 'decay or be eaten up by bacteria or things like that, it would be a big problem.'[72]

The potential for a transnational or international environmental incident is increasing with exploration of resources in risky areas. For instance, Cairn Energy, the Scottish based company whose only previous drilling experience was in the Indian Ocean, started exploratory drilling on July 6th, 2010, near Disko Bay in the Davis Straight off the west coast of Greenland. A Cairn's accident would be confined to the coast of Canada, slowly making its way down to Labrador off Canada's East Coast. This in turn would have an effect on the local fishing industries and ultimately lead to a transnational

[72] Weaver, Andrew (Interview conducted at the University of Victoria, BC, Canada on August 9th 2010)

issue for Canada, Greenland and Denmark. Dr. Weaver again offers insight on a potential oil spill in the Arctic based on previous environmental problems and resulting transnational disputes. 'The Gulf spill largely affected the United States but it's interesting when you get these transnational spills; a spill off Greenland would absolutely affect Canada because the current systems are such that it would come towards Canadian coasts, depending on the scale, it would need to be a large spill.'[73]

Canadians believe Greenland is risking too much in what many Canadians think is a rushed exploration. In the process, Canada is alert to risks of a potential spill in its northern region that would harm domestic economies. Yet, Canada has no legal way to interfere in Greenland's plan of Arctic petroleum exploration. The project itself has already started with Cairn Energy drilling the first of four wells on the Alpha prospect located off western Greenland. To give an example, Cairn Energy will be working in waters of an average depth of five hundred meters or sixteen hundred feet. To compare, the Deepwater Horizon disaster occurred at depth of roughly five thousand feet, far deeper then the initial drilling in the Arctic by Cairn Energy, but this fails to mitigate the risks. In response to the drilling off the coast of Greenland, an agreement between the two Arctic states provides that Canadian regulators will oversee the drilling process. This means that Greenland has agreed to work with Canada's National Energy Board. Greenland will also allow Canadian regulators to do regular inspections of the rigs and drill sites as well as conduct frequent tests of the entire drilling operation. The National Energy Board of Canada will also place a Canadian regulatory official in Greenland. The official's main purpose will be to inspect the drill sites, observe the drilling practices, assess the risk potential for Canada and report the findings back to the Canadian government on a regular basis.[74]

However, this assurance to oversee the drilling process but not influence the outcome does little to ease the fears of such NGO's as Green Peace and the Canadian Arctic Resources Committee who see looming environmental problems in the Arctic due to exploration and drilling. Even with some of the precautions that Cairn Energy is taking, like drilling two wells to ensure a relief well could be completed in a minimal time frame, environmental concerns are not eased. In the case of a blowout with one rig, the drilling for a relief well; a process Jim Prentice, Canada's Environment Minister estimates would take a month given the shallower drilling depths that the

[73] See 76.
[74] McCarthy, Shawn, Canada to monitor Arctic drill sites, The Globe and Mail, 9 June 2010, http://www.theglobe andmail.com/report-on-business/industry-news/energy-and-resources/canada-to-monitor-arctic-drill-sites/article1598009/.

company is targeting.[75] To compare the recent Deepwater Horizon disaster in the Gulf Coast located in the southern United States to a potential spill in the Arctic, the effects to the Arctic's environment would be unmatched. The new estimate of twenty-five thousand to thirty thousand barrels of oil a day, the Deepwater Horizon,[76] would severely damage the Arctic because of the lack of technology and infrastructure available to contain a spill that is covered by ice. Conventional ways to contain a spill would be rendered useless. This would undoubtedly become a transnational problem with both national polices of Canada and Denmark unable to deal effectively with such an event. Evidence shows that a spill continuing for a month, as Environment Minister Prentice claims, would be too much for the current infrastructure in the Arctic. Ecosystems would be destroyed beyond repair and would internally shatter any remnant of the presumed environmental protection capabilities of both Canada and Denmark along with their ability to work together on production and development of safe and sustainable areas of energy exploration.

'There is a tragedy of the commons with the atmosphere being portrayed as a common area and leaving the oceans to be someone else's problem,' states Dr. Weaver. By the time we realize that many current environmental policies, like Canada's Low Carbon Fuel Standard negates actual change, it will be too late. There is a great deal of both inertia and momentum in climate systems, irradiative forcing is growing and will be around for a long time because of previous and current greenhouse gas emissions. The world's oceans have the ability to sequester heat which will warm the ocean over time. What people have to recognize is that these problems must be dealt with now or we will impose on future generations an insurmountable task of dealing with the consequences.[77] The Arctic is believed to hold enough undiscovered petroleum resources to fuel the planet for years; this has stimulated the interest of many governmental and private companies to seek profits in an alarmingly short time frame.[78]

This is reflected in the quick policy schemes of countries like Canada to award exploration rights in zones that have not been fully documented or protected. An example of this are the exploratory licenses given to Chevron and British Petroleum in parts of the Canadian controlled Beaufort Sea that is situated in whale sanctuaries and highly fragile ecosystems. Inuit organizations are extremely skeptical about offshore development in the Canadian Arctic citing

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[75] McCarthy, Shawn, Canada to monitor Arctic drill sites, The Globe and Mail, 9 June 2010, http://www.theglobe andmail.com/report-on-business/industry-news/energy-and-resources/canada-to-monitor-arctic-drill-sites/article1598009/.

[76] Gillis, Justin, and Henry Fountain, New Estimates Double Rate of Oil Flowing Into Gulf, The New York Times, 10 June 2010, http://www.nytimes.com/2010/06/11/us/11spill.html.

[77] See 76.

[78] Gass, Henry, Global Warming opens up the Arctic, The McGill Daily, 13 February 2009, http://www.mcgilldaily .com/articles/26716.

concern about the risks to their habitat and way of life. A stark reminder is the recent situation in the Gulf Coast. To the Inuit, there are no significant changes to drilling procedures to ensure that wells in the Arctic will not encounter the same structural weaknesses. Is the risk of destroying the Arctic and its sensitive ecosystems worth 'a few years' of oil revenues? That is something national governments and international agreements will have to address. It cannot be allowed to become a simple matter of short term gain for some and long term pain for those who live with the consequences of an accident?

Ecosystems reflect existing climatic and environmental situations; if there is a change in one of the variables, fundamental and possibly dramatic changes will happen to the ecosystems that existed. There will be completely different ecosystems in the Arctic with increased environmental change due to global warming in the Arctic. Some species will become extinct, some new ones will move in and it will be a different place. In terms of the melting permafrost in the Arctic region, this is a major problem for a number of reasons. The first being that there is a large amount of carbon trapped in permafrost which, as it melts, becomes exposed to oxygen and as it decomposes it produces carbon dioxide and methane. This leads to positive feedback to global warming and thus increases climate shifts. This also leads to problems in terms of infrastructure because not only roads, bridges and buildings falter, but trees also. Some shallow rooted trees with melting permafrost below them will slump and pictures of falling trees can be common in the Arctic. Converting permafrost regions into wetlands in the North will create many problems for the present natural habitat.

Weather conditions are local, if there is change in extremes in Pakistan with huge floods; those living in Canada are not directly affected. In the climate community there is an increasing likelihood of big events, and when these events happen, bigger and more devastating events can occur. No specific event today can be attributed to global warming, but it could be said that the likelihood of such an event occurring in the future will increase. Waiting for disasters is the wrong approach, and this would appear to be the risk in the hasty exploratory drilling in the Arctic region. National policies by all Arctic Five Nations towards the High North have not taken this into account; the global perspective has not been addressed. Arctic polices generally have few, if any concrete contingency plans for unforeseen problems resulting from resource exploration. An example of this environmental neglect is Chevron and British Petroleum's work in Canada's Beaufort Sea. Months before the Deepwater Horizon disaster both companies were lobbying the Canadian government to nullify the requirement for relief wells in the Arctic. This was because of two reasons, the relatively short drilling season hampered production time and new technology in blowout prevention could be made available that would potentially replace the need for relief wells altogether. The new technology refers to instruments on the blowout preventers that permit visual verification that valves are closed. This

was a major critique of the Deepwater Horizon blowout preventer which did not have such technology.[79] Often contingency planning raises the right issues, but a lack of investment and capital commitment essentially renders these efforts meaningless.

[79] Schoof, Renee, Better Technology can prevent another Gulf oil blowout, McClatchy, 22 September 2010, http://www.mcclatchydc.com/2010/09/22/100992/chu-better-technology-can-prevent.html

New Players in the Arctic

China

Much of the focus on Arctic resource management and exploitation has been on the Arctic Five and justifiably so. However, other international players are emerging in the hunt for natural resources and investment opportunities. China has had an increasing presence in the Arctic since 1993 when the Xuelong, the Blue Dragon, entered into service. The Xuelong is famous in Canadian military circles for its actions in 1999 when it was discovered in Tuktoyaktuk in the Beaufort Sea. Xuelong was not discovered by Canada while making the voyage to the Arctic, this helped raise concerns in Canada about the interests of China in Arctic resources. [80] The Snow Dragon was China's first icebreaker, after spending as estimated $3.7 million US dollars; China gained the ability to explore Polar Regions. The first Chinese expedition into the Arctic occurred in 1999 and since that time two more have been completed with one in 2003 and another in 2008.[81]

Along with growing sea capabilities, China established its first Arctic research station in October of 2003. The station is located in Norway in Ny Alesund on Svalbard Island and it has multiple wavelength monochromatic all sky CCD imaging systems that have been deployed in this station, which monitors aurora phenomena.[82] For China to ensure a role for itself in the Arctic, measures were taken in 2007 to launch a national research program, covering ten Arctic projects of geopolitical interest: the Arctic and human society, Arctic resources and their exploitation, Arctic scientific research, Arctic transportation, Arctic law, Arctic policies and diplomacy, military factors in the Arctic, China's Arctic activities, Arctic's strategic position, and China's Arctic policy and recommendations.[83] Even though the official opinion from many is that China is maintaining a wait and see approach, its sheer size and status as a rising global power are causing many to take notice, especially the Arctic Five, and monitor China's current polices and Arctic goals.

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[80] Lasserre, Frederic, China and the Arctic: Threat or Cooperation Potential for Canada. Center for International Relations, Issue.11. 2010. pp.3.
[81] Jakobson, Linda, China Prepares for an Ice-Free Arctic, SIPRI Insights on Peace and Security, Vol.2. 2010.
[82] Polar Institute of China (PIOC), Programmes, 2010, http://www.pric.gov.cn/enindex.asp.
[83] Ostreng, Willy, There is no race for the Arctic. Research Institute of Ocean Features, 23 April 2010.

Along with accumulating resources, China is positioning itself with international organizations focused on research in the Arctic and on the effects of climate change. In 1997, China joined the NGO International Arctic Science Committee which specializes in multi-disciplinary research on the Arctic and its role in the earth's system. Furthermore, in 2005 China joined the Ny-Alesund Science Managers Committee, an organization that was established in 1994 to help all researchers, regardless of nationality to co-operate and streamline regional research. Along with joining other international Arctic research organizations, China wasted little time in developing their own Arctic organizations to promote research and the understanding of the Arctic region. The most important organizations and institutions that China has developed are, the Shanghai based Polar Research Institute of China (PRIC), which is in charge of polar expeditions on Xue Long and conducts comprehensive studies of the polar regions, 'the China institute for Marine Affairs, the research department within the State Oceanic Administration (SOA) in Beijing, which concentrates on international maritime law and China's ocean development strategy; and the Institute of Oceanology, a multidisciplinary marine science research and development institute within the Chinese Academy of Science.'[84]

Aside from procuring influence due to major research investments, China is also looking into possibilities of direct investment in the Arctic region. Early in 2010, China looked into the possibility of investing in Iceland. Iceland, being a country heavily indebted is currently engulfed in an ongoing fight with Britain and the Nederland's for roughly five billion dollars lost by savers when the Icelandic banks collapsed. The Nordic country that is tinkering on the edge of bankruptcy now offers a long term investment opportunity for China that would allow it to gain a hold on some key Arctic infrastructure. As China continuously gains importance in goods shipped around the world, it is showing interest in both the Northwest Passage and Northern Sea Route.[85] The thought by Iceland and its President Olafur Ragnar Grimmson is that Iceland could eventually become a transit and logistics hub for Arctic travel. These possibilities are because of facilities that were left by the United States and its military when it left Iceland in 2006. The infrastructure already in place provides a base or starting point, future investment that seems ready and able to be provided could eventually make Iceland a commercial hub. Of course, this all hinges on the time frame of melting ice and the feasibility of Arctic shipping routes.

China has not been limited to investment opportunities in Iceland. Russia is proving to be a viable option for investment and joint operations after recent quotes by Dmitry Kobylkin, the Governor of the Russian region Yamalo-Nenets Autonomous Okrug which is

[84] Jakobson, Linda, Growing Interest in the Thawing North, The World Changing Canada, 2010.
[85] Underhill, William, China Eyes Investment in Iceland, Newsweek, 18 March 2010.

known for its abundant resources. Mr. Kobylkin has stated that his region is ready to offer Chinese partners beneficial agreements in hydrocarbons, minerals, access to the Northern Sea Route, agriculture and innovation and science.[86] Russia's Yamalo-Nenets Autonomous Area is located in Northern Siberia, it currently accounts for, 'ninety percent of Russia's natural gas output and twelve percent of oil production.'[87] Foreign investment in the Yamal region has already topped one billion U.S. dollars in 2009. However, this stands to increase as fields in the Yamal Peninsula are developed further, although this will not happen for some time as prices for fossil fuels are relatively low compared to input costs. It is estimated that the natural gas fields in the Yamal Peninsula could yield as much as, '360 billion cubic meters a year, with reserves estimated at 50 trillion cubic meters.'[88] Arguably China's greatest ally on several levels, the relationship between China and Russia goes deeper than merely proposed Arctic cooperation as Energy is a major factor. In August 2010, a Russian gas producer, Novatek, sent seventy thousand metric tonnes of gas condensate from Murmansk to Asia accompanied by two icebreakers. To deepen the energy ties between China and Russia, the construction of the oil pipeline from Siberia to China in the Asia-Pacific region puts a long term stamp on the relationship. The Chinese Foreign Minister Yang Jiechi is also quoted as saying that the Chinese-Russian relationship is, 'a top priority for China and that Moscow and Beijing held similar positions on many international and regional issues and had vast potential for the development of their interaction.'[89]

The director of the Chinese Arctic and Antarctic Administration, Qu Tanzhou, has publicly stated that, 'China, like other countries under the framework of the United Nations Convention on the Law of the Sea, has the right to participate in the exploration of the Arctic.'[90] Qu went on further to publicly state in an interview with China Daily that, 'it is estimated that the Arctic has thirty percent of the world's undiscovered gas and thirteen percent of the world's undiscovered oil, which are global resources, not regional.'[91] China, the world's second largest economy, wants to impose its strength and will on the future of Arctic development and avoid standing idle as the new, 'great game', unfolds.

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[86] China to boost Arctic research, Barents Observer, 6 May 2010, http://www.barentsobserver.com/china-to-boost-arctic-research.4781463.html.
[87] Russian Arctic region invites China to oil and gas projects, Rianovosti, 2 May 2010, http://en.rian.ru/russia /20100502/158841589.html.
[88] Russian Arctic region invites China to oil and gas projects, Rianovosti, 2 May 2010, http://en.rian.ru/russia /20100502/158841589.html.
[89] Russia-China oil pipeline to be ready by yearend, Rianovosti, 7 July 2010, http://en.rian.ru/business /20100307/158118818.html.
[90] China to boost Arctic research, Barents Observer, 6 May 2010, http://www.barentsobserver.com/china-to-boost-arctic-research.4781463.html.
[91] China to boost Arctic research, Barents Observer, 6 May 2010, http://www.barentsobserver.com/china-to-boost-arctic-research.4781463.html.

In the Arctic, China currently does not have a legal means of challenging for direct involvement under UNCLOS law. This is because coastal states own the authority and absolute right to conduct marine scientific research in its territorial waters and within its exclusive economic zone or on its continental shelf.[92] The rules are a bit different inasmuch as coastal states cannot bluntly prohibit research from foreign actors, but it may do so if some criteria are not met. Research activities are supposed to be conducted in a peaceful means, and with this criteria comes the respect for the territorial waters of a coastal state, environmental issues are paramount in this instance. The scientific measures are not to unjustifiably conflict with other uses of the territorial waters in question, for instance local fishing of the coastal state. Furthermore, there must be an acknowledgment of international law and the protection and preservation of the marine environment by foreign actors who wish to do research in territorially claimed waters.[93] Furthermore, marine scientific research activities cannot be used as a legal basis for a jurisdictional claim.[94] According to Frederic Lasserre, a head of two international research teams based in Canada, China has followed these rules and there is no reason to suspect China of otherwise going against international law.

The pressure by China to enter the Arctic race should not be surprising considering the global race for raw materials and resources. Major infrastructure projects in China and a consumer class that continues to grow are driving the fact that territorial resources are under threat by foreign money. There have been reports from the International Energy Agency that show China as the main consumer of energy in the world. China has surpassed the United States for this title, and right now there are no signs of this trend decreasing.[95] In 2009, China consumed 2.252 billion tonnes of energy from multiple sources. Compared to the United States, China consumed four percent more of total primary energy and the gap stands to increase in the future based on recent IEA findings.[96] China has of course been affected by the global recession, but it is still sustaining strong economic growth as it has for the past decade. According to reports, China will overtake Japan as the world's second largest economy

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[92] Lasserre, Frederic, China and the Arctic: Threat or Cooperation Potential for Canada. Center for International Relations, Issue.11. 2010. pp.3.
[93] UNCLOS, Article 240.
[94] UNCLOS, Article 241.
[95] Hoffman, Andy, Outpacing U.S., China now the world's largest gorger of energy, 19 July 2010, http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/outpacing-us-china-now-the-worlds-largest-gorger-of-energy/article1645406/.
[96] Hoffman, Andy, Outpacing U.S., China now the world's largest gorger of energy, 19 July 2010, http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/outpacing-us-china-now-the-worlds-largest-gorger-of-energy/article1645406/.

later this year. Not long after that, China will become the world's largest economy. The second quarter output in China came in at $1.337 trillion (USD) as opposed to Japans $1.288 trillion (USD) (Japans output was larger in the first quarter; for comparison, Americas second quarter nominal output was $3.522 trillion USD).[97]

Along with increased energy consumption and an internal market shift, China's transformations will have repercussions and far reaching effects around the world influencing investments and political ties. In June 2010, China imported an estimated 5.4 million barrels of crude oil a day were entering China from abroad; this now meant that more than fifty percent of China's oil consumption was supplied from outside its borders, dramatically increasing its dependence on foreign oil.[98] China's imports in 2009 averaged 4.77 million barrels of crude oil a day - an increase of 30.2 percent year on year. The total crude oil consumption was 8.71 million barrels per day, an increase of 18.6 percent year over year.[99] This growing demand for energy by China's 1.3 billion citizens is causing China to invest abroad to ensure access to energy. Not all Chinese are major energy consumers yet as the majority still live in the rural areas. Chinese companies have invested in Africa, Brazil and the Middle East with some smaller investments in countries such as Canada. The Chinese oil giant Sinopec has purchased nine percent interests in Syncrude Canada, the major company working on the Canadian Oil Sands.[100] This purchase was for $4.65 billion (USD), but it is not the only agreement with a Chinese company interested in Canada's Oil Sands. Petro China purchased sixty percent of two Athabasca Oil Sands Corporation projects in Northern Alberta for nearly $2 billion (USD) in 2009. The International Energy Agency also predicts that the energy demands of China will require upwards of $4 trillion (USD) worth of investments over the next two decades to remain able to meet domestic needs. China still relies on coal for its electricity, but the growing consumer class in China is causing a need for increased fossil fuels linked to transportation. Chinese investments in Russian companies have given China access to Russia's Arctic areas. The

[97] Second in line, The Economist, 16 August 2010, http://www.economist.com/blogs/freeexchange/ 2010/08/china_0.
[98] Hoffman, Andy, Outpacing U.S., China now the world's largest gorger of energy, 19 July 2010, http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/outpacing-us-china-now-the-worlds-largest-gorger-of-energy/article1645406/.
[99] Hoffman, Andy, Outpacing U.S., China now the world's largest gorger of energy, 19 July 2010, http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/outpacing-us-china-now-the-worlds-largest-gorger-of-energy/article1645406/.
[100] Hoffman, Andy, Outpacing U.S., China now the world's largest gorger of energy, 19 July 2010, http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/outpacing-us-china-now-the-worlds-largest-gorger-of-energy/article1645406/.

relationship between China and Russia goes beyond investment in northern Russian regions and energy. The Shanghai Cooperation Organization (SCO) is a mutual security intergovernmental grouping that has tied these two states together since 2001.

Beyond a doubt, China is viewing the Arctic as a potential resource base. The population of China is demanding resources at a rate that is unsustainable from domestic sources. This conclusion is propelling a Chinese power play fueled by the world's second largest economy.

No one should be surprised that China is trying to exert its business and political will in the Arctic. It was only a matter of time before the world's fastest growing economy would require the safety and security of raw resources from this relatively new region. It is true that Chinese prosperity is not evenly spread across the country with a widening gap between the rich and poor. Dr. Eswar Prasad, the Senior Professor of Trade Policy at Cornell University states,

> *"There are virtually no historical parallels for a country that is so large and dominant in absolute terms and yet that lags far behind many other countries in terms of per capita income and other indicators of development. There is still a yawning gap in per capita income levels between China and the advanced economies and, even at present growth trajectories, it will take a generation for China to achieve the level of development of advanced economies."*[101]

Nonetheless, the Chinese government and ruling classes believe China has rights in the High North. 'The Arctic belongs to all the people around the world as no nation has sovereignty over it', Chinese Rear Admiral Yin Zhuo is quoted saying, 'China must play an indispensable role in Arctic exploration as we have one-fifth if the world's population'.[102] The comments by Admiral Zhuo continue to show that China is not satisfied with just being a joint or minor investor in the Arctic, China sees its role as much larger. Even if this is not the desire of many rural Chinese, an elitist movement within China will try to influence the Arctic and its future development. Many other states around the world would love the opportunity to become involved in the Arctic accompanied by the potential benefits that investment in the region could bring. It now falls to the Arctic Five to settle their respective differences and border disputes before there is a definitive push from outside the Arctic coastal states to explore the expanse at the top of the world. The longer disputes continue within the intra-Arctic Five, the greater the opportunities for states like China to put their stamp on the region.

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[101] Second in line, The Economist, 16 August 2010, http://www.economist.com/blogs/freeexchange/ 2010/08/china_0. Prasad Interview.
[102] G. Chang, Gordon, China's Arctic Play, The Diplomat, 9 March 2010, http://the-diplomat.com/2010/03/09/china %E2%80%99s-arctic-play/.

The European Union

The European Union is making a push to influence policies in the Arctic in climate, environmental impact assessments and international relations. Denmark, through Greenland, Finland and Sweden all have territories in the Arctic region and therefore directly tie the European Union to the Arctic. Norway is and will remain a leader in offshore drilling resources and is world renowned for developing technology to withstand the rough climate the Arctic delivers. This is becoming increasingly important as Norway's state controlled energy company is becoming more involved in Russia to develop newly discovered offshore oilfields.

The Russian state controlled company, Gazprom, is the world's largest gas company and possesses the world's largest natural gas reserves. In 2007, Statoil joined in the development of the Shtokman field with Gazprom but this is not the first instance of Norway's involvement in the Russian petroleum industry. Statoil is a partner in the Kharyaga oil field in the resource rich region of Russia, Nenets Autonomous Okrug, with a 40 percent stake. This is the same region that is currently courting Chinese investment in establishing a resource based trade system around petroleum and raw resources. The recent Statoil-Gazprom agreement on scientific and technological cooperation that was signed at the St.Petersburg International Forum has ensured mutual cooperation and potential economic gains for many years. The agreement, that is supposed to be reviewed and adjusted every three years, is important to the European Union. Provided through this framework for international cooperation is the possibility, through Norway's involvement in the European Economic Zone, for Europe to tie itself to additional petroleum resources. The technological agreement states that Statoil and Gazrpom will cooperate in areas such as, geological exploration and development of hydrocarbon fields; hydrocarbons production and treatment before transportation; technologies and equipment for the hydrocarbon transportation; environmental protection of the Northern Seas and territories; Health, Safety and Environment issues under northern conditions; energy saving; renewable energy sources; gas process-sing; project management and corporate governance.[103]

The European Union's case for being directly involved in the future of the Arctic is strengthened by its involvement in the Northern Dimension policy. The Northern Dimension policy is a joint agreement and shared policy by the European Union, Iceland, Norway and Russia in promoting stability and prosperity in the Arctic to go along with sustainable development. In 1999, the Northern Dimension policy was created and looked upon to act as an external strength

[103] Statoil and Gazprom sign technology agreement, Barents Observer, 21 June 1010, http://www.barentsobserver.com/statoil-and-gazprom-sign-technology-agreement.4795139-116320.html.

promoting policy for a united Europe. Its importance was only emphasized by being the European Commission's first plan for the Arctic and would set the tone for future legislation from Europe.[104] Other participants in the Northern Dimension policy are the Barents Euro-Arctic Council, Council of the Baltic Sea States, Nordic Council of Ministers and the Arctic Council. The Northern Dimension is further strengthened by the fact of its inclusion of non-European actors and institutions as this helps promote new ideas and creates an area of broad ranging perspectives. Canada and the United States are included in the Northern Dimension Policy with an observer status. This intern has fostered hopes in Europe and North America of deeper integration and cooperation between transatlantic states and a joint view on solving problems of the northern region as a whole.[105]

The European Union's Northern Dimension has a sound financial plan that will allow it to act on initiative and integrity in Europe's North. Policies that are initiated through the Northern Dimension are supported and financed through many different sources. These sources include funding from functioning European Union financing institutions, national budgets, international regional organizations, international financial institutions, regional and local public organizations and even from schools and universities that are involved with civil society.[106] This is important by providing a good economic start for future sustainable development in northern Europe. The European Union's Northern Dimension Policy relies on the seed money principle to fund its programs, this is an economic system based on the leverage effect.[107] The seed money principle means that money is used to facilitate or invest in projects that need a nudge. This ultimately leads to projects becoming self sustaining; this will in turn facilitate the establishment and growth of new projects that can secure investment from already established projects. This ultimately leads to substantial funds circulating and promoting projects in a region or sector. A major objective within the Northern Dimension Policy of the EU is intensified economic cooperation and integration. If Europe builds on its current cooperation with Russia, specifically cross border energy investments in both up and downstream assets, further opportunities will arise for joint partner-ships. Intelligent investment in the Russian northern region would promise economic success linked to raw material development. For all concerned it is in Europe's interest to work out an agreement with Russia, at the same time assuring weaker states in the Union that they will not be abandoned.

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[104] Henriksson, Maimo, The New Northern Dimension Policy, Strategies and Programmes, 2007.pp. 118-121.
[105] Henriksson, Maimo, The New Northern Dimension Policy, Strategies and Programmes, Actors, 2007.pp. 118-121.
[106] Henriksson, Maimo, The New Northern Dimension Policy, Strategies and Programmes, Financing, 2007.pp. 118-121.
[107] Henriksson, Maimo, The New Northern Dimension Policy, Strategies and Programmes, Policies, 2007.pp. 118-121.

Current Norwegian and Russian agreements, specifically between Statoil and Gazprom, need the complement of a strong relationship between the EU and Russia. It is hoped that the Northern Dimension Policy is not a policy based on economic gain above all else. Many nationals and academics are hopeful that other issues, like social stability and environmental protection, will retain precedence and attention. Along with the Northern Dimension Policy, the European Union has other tools it can use to keep issues fresh in the minds of governments. This is helped through institutions like the Arctic Council which creates an open area for dialogue between interstate actors. The Arctic Council institution acts as a transatlantic bridge; this instrument of dialogue between states remains one of the most important features of both itself and the Northern Dimension Policy.[108] International relations are strengthened through discussion. The case of control and economic integration and advancement in the Arctic region will not prove to be different in this regard.

[108] Senior Norwegian official discussing the importance of the Arctic Council as a bridge of dialogue and cooperation, 2007.

The Rush is On

On August, 20th 2010 Canada unveiled a new Arctic plan. Lawrence Cannon, Canada's Foreign Minister called for the Arctic Five to cooperate and work together on sharing the High North. The International Policy Paper states that cooperation amongst the Arctic countries is needed to resolve international disputes and that Canada will take the lead in going to other member states to discuss the issues. Furthermore, Canada claims that a main focus of Arctic states should be to ensure the social and economic development of the North and it is the duty of Arctic nations to empower the people of the North. Currently Canada is involved in disputes over the Beaufort Sea with the United States and Hans Island with Denmark. In an announcement by the Canadian federal government there was constant reference to the need of a rules-based region in the Arctic and a need for clearly defined boundaries. Describing Canada as an Arctic power, Canada's Foreign Minister claims the government of Canada will meet its 2013 deadline for presenting its claims to the ocean floor through the United Nations and UNCLOS legislation.

The United States has yet to ratify the United Nations Convention on the Law of the Sea and remains the only state of the Arctic Five yet to have done so. The United Nations Convention on the Law of the Sea has been ratified by all other Arctic coastal states with the United States acknowledging the relevant conditions as customary international law.[109] The issue of UNCLOS ratification is currently in front of the US Senate, it is feared by many politicians and academics in the US that if UNCLOS is not ratified in the near future, the United States will be left behind in the race over the Arctic's resources.

Russia is looking for potential investors, specifically China, to share the economic load that developing their offshore fields will require. Norway's Statoil is in negotiations with Russia's state run gas giant to develop and share technology in helping access the raw petroleum resources below the water and ice surface in the Arctic. Greenland, under Danish control, is actively looking for petroleum resources off its west coast, something that is drawing concern from Canada. A new rush is on, only time will tell how negotiations and agreements will shape the Arctic and distribution of the world's resources located in the thawing Arctic.

[109] Byers, Michael, Pax Arctica, Global Brief, 19 February 2010. *http://globalbrief.ca/blog/2010/02/19/pax-arctica/*

Conclusion

The Arctic is no longer a region neglected by mainstream media and business. Arctic nations are seizing the opportunity to submit their claims under UNCLOS for extended continental shelves, thus guaranteeing the opportunity to gain vast amounts of raw resources. The resources that stand to be exploited once all border disputes are settled range from gas, oil, diamonds, coal, iron, ore, gold and zinc.[110] Many of these resources, specifically the petroleum based resources, are extremely important to all the states involved due to the world's increasing reliance on oil and gas for transport. A new great game is in the works as countries jockey to best position themselves to exploit and gain from the Arctic. The Arctic has been surrounded by studies searching for natural gas and oil. As much as thirty percent of world natural gas and ten percent of world undiscovered oil are said to be in the Arctic, a multi-billion dollar industry depending on the scale of development. The Arctic states consisting of Canada, Denmark, Norway and Russia have territorial claims to the Arctic through the United Nations Convention on the Law of the Sea. Norway and Russia are good examples of how two states with an Arctic stake due to geography, are working together. Agreements between both national petroleum companies on technology and development involving Russian offshore oil fields is a positive sign of mutual cooperation instead of strictly competition. Furthermore, this relationship is strengthened by the recent agreement over the Barents Sea, a region for many years that has been disputed because of fishing and again, petroleum resource rights. This is a positive sign for the relationship between Arctic states and could be the beginning of a positive era for international relations and Arctic policies.

Arctic negotiations and agreements will be achieved through the increased role of institutions, like the Arctic Council, which promote cooperation though dialogue. It would be in the interest of Arctic states to use valuable institutions like the Arctic Council for mutual cooperation and multi-state interaction on numerous resource issues making future hostilities and confrontation over the region impossible. Not only would increasing the role of the Arctic Council strengthen common ties over the Arctic, but it would allow all involved to have an 'open door' policy in Arctic international relations by

[110] S.Yalowitz, Kenneth, James F. Collins, and Ross A. Virginia, The Arctic Climate Change and Security Policy Conference, Carnegie Endowment for International Peace, 1-3 December 2008. pp.12.

promoting efficiency and northern integration in its entirety. A common Arctic policy through the Arctic Council would be most beneficial to the northern regions as a whole by promoting coherent development, instead of development which is unevenly distributed throughout the Arctic at different speeds depending on the state. This could help pool investments from contributing states and perhaps promote regional cooperation by specifically focusing on Arctic coastal state investment rather than foreign investment from non-related states. Going further, it would be in the best interests of all parties involved, national governments and NGO's, to deepen the power of the Arctic Council and expand its tools of negotiation and dialogue to make it capable of a joint regional perspective rather than separate voices. Perhaps political power should be granted that would allow northern representatives of each Arctic coastal state to hold power of initiative in the Arctic Council in regards to development in the Arctic, with national governments holding the implementation power where joint agreement between the two political bodies needs to be attained.

A fact that cannot be overlooked when identifying relations over the Arctic region is the inclusion of the Indigenous peoples and their stake in the outcome of the Arctic. Indigenous institutions like the Inuit Circumpolar Council (ICC) are important and must be included in negotiations and research activity. As the primary residents in the Arctic region, Indigenous peoples of all Arctic Five Nations should have the opportunity to participate in meetings to ensure mutually beneficial agreements for all of those involved.

The Arctic Five are no longer the only nations interested in the resources that the Arctic could potentially provide. It is evident that China, now the world's second largest economy, has a major focus on the Arctic and political figures within the country have clearly stated their desired intentions for the Arctic's future. This evidence is supported by large scale investments by China in icebreakers, research stations and the discussion of potential investments in the Russian region of Yamalo-Nenets Autonomous Okrug. The European Union also has an interest in the potential economic side of the Arctic, but also a regional interest as Greenland, through Denmark, is member of the European Union. Furthermore, Finland and Sweden are all classified as Arctic states but lack a coastal component. Norway, being part of the European Union's EEC (European Economic Community) has strategic importance to the European Union as successful exploration in the Arctic could mean access to resources for Europe.

Environmental concerns and other aspects of the European Union's Northern Dimension policy that call for the development of the North in a sustainable way need to be the focus of future development in the Arctic. Input from a global perspective needs to be taken into account, and it would be very wise for Arctic Five states to acknowledge certain European Union policies and perhaps build or modify them to create a 'most beneficial' scenario for the future of the

Arctic. This is not to say the right over the Arctic and its resources is in dispute. UNCLOS is very clear on continental shelf limits. But that does not mean advice from states outside the Arctic Five should be ignored. Discussion in this case would lead to better policies and perhaps a globally beneficial scenario. It is only a matter of time before serious exploration for resources in the Arctic is underway; from an environmental standpoint this is very unfortunate if we are not ready. Discussions and the sharing of knowledge between institutions, nations and regions can promote alternate forms of energy, whereby the need for these resources might diminish. This demonstrates the need for the European Union whose members are world leaders in renewable energy research and implementation to influence development in the Arctic. Germany, 'already gets sixteen percent of its electricity from wind, solar and other renewable sources, three times higher than the level it had achieved fifteen years ago.'[111]

Transportation is a growing issue in the Arctic, one that will prove difficult to solve and yet one that must be solved. Russia and Canada both control valuable sea lanes in the Arctic, but melting ice is causing once frozen passages to open up and become viable for global transport. Canada and the Northwest Passage pose a dilemma that the present Canadian federal government is choosing to attack aggressively, basing its policies on the interpretation that Canada's sovereignty is under a direct challenge. Internally, Canadians are split about the relevance of a waterway in the Arctic and how to deal with countries like the United States who see the Northwest Passage as an international zone. One thing that has increased within Canada is environmental awareness due to the potential environmental problems that can arise from increased commercial shipping in Canada's pristine Arctic waters. Past environmental events, the latest being the Deepwater Horizon disaster, have shaken Canadians sense of security. This has helped propel green thought into the Canadian political spectrum.

The Northern Sea Route provides an opportunity for Russia to create business through transport and commercial shipping. The bottom line for the Russian Federation is business, internally success will be judged by the ability for Russia to gain valuable investment for the development of industries while maintaining complete and full control of its resources. The question of how viable the Northern Sea Route is for a new deepwater transport remains to be seen. The Northwest Passage is subject to the same skepticism after three ships ran aground in just the month of August. The chance for international shipping is strongest in the Northern Sea Route at present, evidence suggests that environmental regulations will be in effect, but how positive they will be remains to be seen.

[111] Germany targets switch to 100% renewables for its electricity by 2050, The Guardian, 7 July 2010, http://www. guardian.co.uk/environment/2010/jul/07/germany-renewable-energy-electricity.

As Dr. Weaver states, 'the Arctic is a special place with ecosystems that are one of a kind.' This fact is true; however, the region is changing at a rapid pace. With temperatures increasing in some cases three times faster than anywhere else in the world, climate change will leave its mark on the Arctic sooner than on our front doors. The melting permafrost and decreasing ice shelf in Greenland are important factors to a soon irreversible state of the Arctic. The ongoing battle between environment and business is taking center stage again, and with this comes transnational issues and the potential for international environmental problems. For instance, Greenland with Cairn Energy in the Davis Straight will not necessarily become an international problem, but the risk remains of a transnational effect that will involve Canada and its Arctic zone. If these environmental problems do arise, are the institutions now in place sufficient to deal with them in a manner that will lead to a quick resolution with minimal damage? That remains to be seen. A partial answer is that there is a lack of experiences among these institutions, like the Arctic Council under such scenarios. If an assumption would need to be made, it would be very possible to claim these institutions have one use, and that is to create policy and regional dialogue. Is this a strong enough principle to deal with a leaking well or an environmental disaster linked to petroleum exploitation? Perhaps not, but it is a function that can be built upon, improved, and hopefully used to create positive scenarios out of problems and new national interests inextricably linked to judicious resource exploration in the Arctic.

In closing, the Arctic is one of the last truly unscathed parts of this planet. It should neither be perceived nor endorsed that there should be a rush because of a societal need for exploitation of the North. Environmental consequences may prove to be too dangerous for this to happen. Major shifts in progressive societies are creating new industries in renewable energy, progress is being made. Furthermore, energy efficiency is only now starting to be seriously researched with the findings prompting many companies to practice the rule of conservation. If cars in the United States were designed with a more fuel efficient system, perhaps by increasing petroleum efficiency from 23 mpg to 35 mpg, petroleum resource consumption would be decreased by nearly 1.2 billion barrels annually.[112] What this is meant to imply is that there are other alternatives than increased consumption of raw materials, especially oil and gas. Time should be taken to ensure that everything is done humanly possible to avoid problems. The limits of technology are not the problem; it's how technology is used that becomes problematic. With the freezing and thawing of relations, a new great game is being played out with a focus on resources. There are many players that factor into agreements including business, foreign and domestic, environmental concerns

[112] Leonard, Whitney, Five Alternatives that Make More Sense than Offshore Oil, Carnegie Endowment for International Peace, October 2009. pp.1.

and territorial control. These three factors are inextricably linked to any discussion of the Arctic and its future development. These factors will continue to influence the formation and establishment of new dialogue based institutions. Time will tell whether Arctic relations are truly thawing, or perhaps even more intriguingly; freezing.