

The Reemergence of the Arctic as a Strategic Location

**A Monograph
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Abstract

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This monograph analyzes the Arctic region as a system by examining the strengths and weaknesses of its political, military, economic, social, infrastructure, and information sub-systems. This investigation reveals the key nodes (critical people and things) and key linkages (critical relationships between the nodes). Key nodes include the ice itself, as well as three of the Arctic states (The Russian Federation, The United States of America, and Canada), the European Union (EU), multi-national oil and gas corporations, supra-national non-governmental organizations, indigenous groups, the World Trade Organization, the internet, and trade among the Arctic states. Key linkages include the Arctic Council, the Barents Euro-Arctic Council, the Nordic Council, the EU's Northern Dimension, the indigenous groups' councils, and the United Nations Convention on the Law of the Sea (UNCLOS) treaty. This investigation also reveals the system's potential. At this time, it could travel in one of two directions, either becoming an area of conflict as the quest for resources drives states to clash, or becoming an area of cooperation with states securing their national interests within UNCLOS while sharing information on common topics.

With the knowledge gained from examining the Arctic region as a system and ascertaining the key nodes and linkages, as well as system potential, the researcher examines what this means for the United States. Using an all-of-government approach, the monograph discusses the strength, weaknesses, opportunities, and threats for U.S. instruments of national power. From this discussion, the monograph author then makes recommendations within those instruments, concluding that it is critical for the U.S. to develop the vision, objectives, and policies prior to 2012, when a majority of the Arctic coastal states must have submitted their UNCLOS claims.

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Introduction

Where is Hans Island? Why would Denmark and Canada both claim this uninhabited, 100 meter long island off the coast of Greenland?¹ Why did the Russians send a submarine to the bottom of the Arctic to plant a flag at the North Pole?² Until these recent events, mention of the Arctic conjured up many images, but not typically one of territorial disputes. Some people think of the explorers and adventurers who braved the elements to reach the North Pole or to discover the Northwest Passage. Others who are more focused on national security think of the Cold War's strategic bombers and submarine-launched ballistic missiles. Very few think of a massive mediterranean ocean filled with natural resources and encircled by some of the world's most highly developed cultures.³

Until the summer of 2007, the Arctic did not attract much mainstream attention, nor had policy makers and scholars found much interest in the region. According to Arctic scholar Oran Young, it is "...sparsely populated, commonly viewed as a remote periphery of little relevance to mainstream issues," and visited only by "...a small band of archeologists, ethnographers, and naturalists."⁴ However, as the climate changes and the price of oil rises, the Arctic is back in the news. Unresolved territorial and boundary disputes between allies have resurfaced. Suddenly, the Arctic has reemerged as an area of potential conflict after a somewhat tranquil decade following the end of the Cold War. This paper will examine whether this sudden interest in the Arctic is warranted; that is, will it reemerge as a region of strategic importance in the twenty-first

¹ "Canada Island Visit Angers Danes," BBC News, <http://news.bbc.co.uk/2/hi/europe/4715245.stm> (accessed October 8, 2007).

² Alexandra Reihing, "Russia's Arctic Resource Race," Policy Innovations, http://www.policyinnovations.org/ideas/briefings/data/russia/pf_printable (accessed October 8, 2007).

³ John E. Sater, *The Arctic Basin* (Centreville, MD: Tidewater Publishing Corporation, 1963), ii.

⁴ Oran R. Young, *Arctic Politics: Conflict and Cooperation in the Circumpolar North* (Hanover, NH: University Press of New England, 1993), ix.

century? If so, the paper will provide strategies for the U.S. government to pursue to take advantage of the opportunity to shape the region to protect its interests before it becomes an area

Figure 1.



of potential conflict.

It is essential to define the Arctic region prior to examining its importance. Although its geographic and environmental features are distinctive, there are numerous definitions of the Arctic region that consider only arbitrary delineations, such as the Arctic Circle itself.⁵ Located at 66° 33'N, the circle demarcates "...the region of the Northern Hemisphere where each

year the sun does not rise on at least one day and does not set on at least another day."⁶ The boundary preferred by scientists is the 10°C (50°F) isotherm for July, the warmest month. "This line roughly coincides with the lines determined by the northern limit of trees and the southern limit of continuous permafrost."⁷ It is depicted by the red line in Figure 1.⁸ References made to the Arctic region throughout this paper will refer to the red line boundary.

⁵ University of Lapland's Arctic Centre, "Arctic Region," <http://www.arcticcentre.org/?deptid=19555> (accessed September 25, 2007).

⁶ National Foreign Assessment Center, Central Intelligence Agency, *Polar Region Atlas* (Washington, DC: CIA, 1978), 4.

⁷ William E. Westermeyer and Kurt M. Shusterich, eds., *United States Arctic Interests* (New York: Springer-Verlag, 1984), 3.

⁸ Tourizm Maps, "Map of Arctic Circle map," www.world-maps.co.uk/maps/600-arctic.jpg (accessed September 25, 2007).

As defined, this region includes the eight Arctic states (U.S., Canada, the Russian Federation, Norway, Sweden, Finland, Denmark [Greenland], and Iceland) surrounding an ocean with an area of 9.5 million km² and encompassing five major epicontinental seas on the Eurasian side – the Barents, Kara, Laptev, East Siberian, and Chukchi Seas – and two smaller epicontinental seas on the North American side – the Beaufort and Lincoln Seas.⁹ The region's population is approximately four million, with over one million of them indigenous peoples.¹⁰ Russian citizens comprise over 75 percent of the Arctic population; the two major Arctic cities, Murmansk and Arkhangelsk (Archangel), are both located in Russia.¹¹ The region is rich in resources, including hydrocarbons (oil and natural gas), minerals, fish and other marine mammals (seals and whales), and sand and gravel aggregates.¹²



Figure 2.

A proper frame of reference is also important for a true understanding of the Arctic region. Unfortunately, most readers' mental picture of the world is the Mercator projection

(Figure 2)¹³, which, one author notes, "...leaves the Far North strung out along one edge of the map and makes it virtually impossible to conceptualize the Arctic as a region in geographical

⁹ Olli-Pekka Jalonon, *The Arctic as a Multi-faceted Region* (Aberdeen, Scotland: Centre for Defence Studies, 1991), 3.

¹⁰ James Graff, "Fight for the Top of the World," *Time*, October 1, 2007, 34.

¹¹ Young, *Arctic Politics*, 236.

¹² "CIA: The World Factbook: Arctic Ocean," *CIA World Factbook*: 11. *Academic Search Premier*, EBSCOhost (accessed September 25, 2007).

¹³ World Atlas, "World Map," <http://www.world-atlas.us/world-map.gif> (accessed November 14, 2007).

terms.”¹⁴ If the Arctic is viewed in the center of a map, as in Figure 1, the region’s importance is more immediately evident.¹⁵ For example, the short distance between the U.S. and Russia makes it clear that they are close neighbors in the Arctic, not eight time zones away in a west-east view.

It was this short distance that made the Arctic emerge as a strategic region after World War II. As the U.S. and Soviet Union began to draw ideological lines to divide the world, the air corridors over the Arctic became critical. As early as 1945, and well before the Soviets built a strategic bomber force, the JCS “...accepted the probability of future air operations occurring across the North Atlantic and polar regions, the shortest distance between the two powers.”¹⁶ As technology improved, both countries aimed ballistic missiles at each other, and later sent submarines with nuclear ballistic missiles to patrol the icy waters.¹⁷

By the late 1980s, the region was militarized, with the Soviet Northern Fleet in the Kola Peninsula, east of the northernmost part of Norway, facing off against the NATO alliance. Meanwhile, the U.S. pursued production of a 600-ship Navy and developed a new maritime strategy based on forward operations.¹⁸ On October 1, 1987, Soviet Premier Mikhail Gorbachev attempted to reverse this trend with his Murmansk speech, which called for an “Arctic zone of peace.” Gorbachev set forth a six point program for international cooperation in the area, which included establishing a nuclear free zone in Northern Europe, limiting naval activity in seas adjacent to the region, cooperating peacefully in the exploitation of resources, conducting

¹⁴ Young, *Arctic Politics*, x.

¹⁵ University of Texas at Austin Perry-Castaneda Library Map Collection, “Arctic Region (Political) (2007),” <http://www.lib.utexas.edu/maps/polar.html> (accessed November 14, 2007).

¹⁶ Kenneth Schaffel, *The Emerging Shield: The Air Force and the Evolution of Continental Air Defense, 1945-1960* (Washington, DC: Office of Air Force History, 1991), 57.

¹⁷ Karl Lautenschlager, “The Submarine in Naval Warfare, 1901-2001,” *International Security* 11, no. 3 (Winter 1986-1987): 131.

¹⁸ Richard Lambert and Alan Heston, eds., *The Nordic Region* (Newbury Park, CA: Sage Publications, 1990), 9.

scientific research to better understand the region, cooperating for environmental protection, and opening the Northern Sea Route to foreign vessels.¹⁹ Due to the collapse of the Soviet Union, Gorbachev's vision never came to fruition. However, as the Soviet Union fell and focus shifted away from the Arctic region, some elements of his program began to appear through both government and non-government organizations.²⁰ Gorbachev's initiative reflected a broadening or reconceptualization of the concept of security because it considered resource, scientific, and environmental issues along with traditional (military) security issues.²¹

Once the superpowers no longer considered the Arctic another front in their struggle, issues that had been overshadowed by security concerns materialized, and some decisions shifted away from the central governments. Some Arctic countries began to focus on the pollution left behind in the Cold War's wake, particularly in the Kola Peninsula. Environmentalists began to raise their voices in support of a variety of issues, from harp seals to protection of the Alaskan Natural Wildlife Refuge (ANWR). Additionally, indigenous groups began to network and form regional groups to protect their culture and lifestyle.²² By the turn of the twenty-first century, the region's "civil issues were no longer dominated by the [traditional] concept of security."²³ These changes in the Arctic preceded and coincided with the release of former vice president Al Gore's *An Inconvenient Truth* in 2006, which focused an enormous amount of media attention on climate change. With that, the Arctic came back into mainstream consciousness. While most of

¹⁹ Carl H. McMillan, "Joint Ventures in Arctic Resource Development," Canadian Arctic Resources Committee, <http://www.carc.org/pubs/v16no4/7.htm> (accessed March 13, 2008).

²⁰ Young, *Arctic Politics*, xii.

²¹ Lambert and Heston, *The Nordic Region*, 70-71.

²² Young, *Arctic Politics*, 21.

²³ Willy Ostreng, "National Security and the Evolving Issues of Arctic Environment and Cooperation," in *National Security and International Environment Cooperation in the Arctic – the Case of the Northern Sea Route*, ed. Willy Ostreng (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1999), 23.

the focus was on the negative effects of climate change, other possibilities surfaced as the ice melted. Perhaps resource extraction would become easier and cheaper. Perhaps shorter shipping lanes could be developed between North American and Eurasia. Suddenly, ownership of Hans Island became important, as did ownership of the North Pole.

While these changes have raised awareness worldwide and caused some other Arctic states to take action, the U.S. remains on the sidelines, continuing its long standing policy of benign neglect.²⁴ Current U.S. national strategy documents recognize a key element of the geostrategic arena as competition for natural resources and the changing environment. However, the focus is on reducing dependency on oil, ensuring worldwide availability of food and water, and addressing health-related matters.²⁵ Because the Arctic is not considered, the government agencies that carry out U.S. foreign policy are not involved. In fact, the U.S. government agency establishing priorities in the region is the National Science Foundation.²⁶ It is critical for the U.S. government to engage at this juncture, prior to a serious dispute between two allies which could polarize NATO, or prior to an oil tanker spill causing grievous environmental damage to the Arctic. If the U.S. creates certain conditions now, it could shape the region in accordance with its interests, and build relationships with valuable allies who could potentially assist in the Global War on Terror (GWOT). Otherwise, issues of control of resources and environmental protection could make the Arctic another area of conflict.

The paper is laid out in three chapters to facilitate understanding of the strategic importance of the Arctic, and the U.S. government's ability to shape its future. Chapter 1 will

²⁴ Gail Oshrenko and Oran R. Young, *The Age of the Arctic: Hot Conflicts and Cold Realities* (New York: Cambridge University Press, 1989), 33.

²⁵ Jessie C. Carmen, "Economic and Strategic Implications of Ice-Free Arctic Seas," in *Globalization and Maritime Power*, ed. Sam J. Tangredi (Washington, DC: NDU, 2002), 3.

²⁶ U.S. Arctic Commission, "Report on Goals and Objectives for Arctic Research 2005," <http://www.arctic.gov/files/USARCReportOnGoals2005.pdf> (accessed November 16, 2007).

present the Arctic as a complex, open system, and will model the Arctic system and then discuss key nodes and linkages, as well as system potential. Chapter 2 will discuss the instruments of national power as applied to the Arctic system, with a strengths, weaknesses, opportunities, threats (SWOT) analysis for each instrument. The paper will conclude with Chapter 3, which will draw on American foreign policy traditions to highlight key recommendations, and then draw conclusions about the strategic importance of the Arctic.

Chapter 1

The Arctic is a good example of a complex, open system. Systems interact with their surroundings, and both adapt and are affected by the environment. Although the parts and processes can be studied in isolation, they exist as a set of interconnected elements; changes in one element or a relationship between elements will result in a change elsewhere in the system. It is then necessary to study the system's dynamic interaction of parts, which result in the organization.²⁷ If there is an oil spill on one side of the Arctic, for example, the effects will be felt on the other side as oil travels a clockwise pattern around the North Pole. This may change the migration pattern of some of the Arctic fish, which would in turn change the migration pattern of some of their predators. It may also cause some of the Arctic nations to change their oil transit procedures, which could affect the shipping industry and the price of oil worldwide. Any purely linear approach to the Arctic would be doomed because it would not recognize the complexity and the second and third order effects of any one action.

According to systems theory, there are two main types of systems, open and closed. An open system replaces energy lost with new energy from the outside so it can continue operating. A closed system cannot take in outside energy, so it seeks equilibrium.²⁸ As an open system, the Arctic is continually being fed new energy from many different levels. At the physical level, for example, the circulation of water in the Arctic depends on straits and currents. The most important strait is the Fram Strait between Spitsbergen and Greenland, which brings warmer water from the Atlantic Ocean. Of lesser importance is the Bering Strait, which brings in warmer water from the Pacific Ocean. There is also interaction between the fresh water provided by the

²⁷ Ludwig von Bertalanffy, *General Systems Theory* (New York: George Braziller, 1968), 31.

²⁸ Bertalanffy, 39.

Canadian and Siberian Rivers, the existing sea water, and the melting ice.²⁹ So, at the physical level the water in the Arctic is receiving outside energy from the straits and the rivers, making it the ice and water system a complex one.

Systems can control themselves through two processes, feedback and internal models. Feedback can be both positive and negative; positive feedback bolsters the input to output ratio, i.e., growth is followed by more growth, reduction is followed by more reduction. Although positive feedback allows change to occur, it can also allow the system to become unstable.³⁰ Negative feedback, on the contrary, is self-limiting in that it reduces output when an input increases. This returns the system to a state of equilibrium. Systems with many negative feedback mechanisms are considered well-buffered, meaning that it can absorb many shocks without becoming unstable. This can be both good and bad for the system, good because it is unlikely to fall apart, but bad because it is unlikely to embrace change or growth.³¹ The other

²⁹ Olli-Pekka Jalonon, *The Arctic as a Multi-Faceted Region* (Aberdeen, Scotland: Centre for Defence Studies, 1991), 4.

³⁰ The melting of Arctic ice is an example of a positive feedback mechanism. As ice melts, heat from the sun, which normally would reflect off the white surface and back into space, is instead absorbed by the ocean. This further accelerates the warming of the ocean and, subsequently, leads to more ice melting. Prior to recent temperature changes, the Arctic has been regulating itself through a negative feedback system known as the flywheel and the gateways. Typically, once water is in the Arctic basin, it is swept into the Beaufort Gyre, a huge circular current driven by strong winds. The Canadian and Siberian rivers create a huge reservoir of fresh water in the gyre. The strong winds trap the water in a clockwise flow, but occasionally the winds shift and the gyre weakens, which allows large volumes of fresh water to flow out towards the North Atlantic. This is considered “the flywheel.” The “gateways” are the exit points: Fram Strait, Davis Strait (near Canada), and Hudson Strait (Canada). However, the gateways are two-way: they also let in the warmer Atlantic waters. This system of self-regulation has ensured relatively consistent levels of sea ice throughout the ages. Woods Hole Oceanographic Institution, among many other research organizations, is currently exploring how climate change is affecting the Arctic. It is not clear whether it is a well-buffered system, nor is it clear what the Arctic’s internal model is. In Lonny Lippsett, “Is Global Warming Changing the Arctic?” Woods Hole Oceanographic Institution <http://www.whoi.edu/page.do?pid=12457&tid=282&cid=9206&print=this> (accessed September 25, 2007).

³¹ Dietrich Dorner, *The Logic of Failure – Realizing and Avoiding Error in Complex Situations* (Cambridge, Mass.: Metropolitan Books, 1996), 75.

process for control, the internal model, acknowledges the systems actions with the environment and develops a goal into which it synchronizes its actions.³²

The Arctic exhibits the characteristics of a complex, open system in both its physical environment and in the man-made constructs that provide law and order to this region. As previously discussed, the physical environment is subject to the atmosphere, the oceans and rivers that feed it, and the human inputs (accidental and purposeful). The man-made constructs define who controls what and who is allowed to do what. For example, the United Nations Law of the Sea Convention (UNCLOS) details how a state can claim territory off its coast, and also defines a state's exclusive economic zone (which allows it control of resources within that zone).³³ When one state made a territorial claim in the Arctic, as the Russians did when they planted a flag at the North Pole, it created a world-wide reaction as other Arctic states attempted to refute the Russian claim while simultaneously establishing the greatest amount of territory that they were allowed. It also affected state's internal politics. For example, in the United States a variety of stakeholders from the Chief of Naval Operations to senators on the Committee on Foreign Relations argued that Congress must ratify the UNCLOS so the U.S. can submit its claim to Arctic territory.³⁴

As a complex system the Arctic has many interacting pieces. These pieces could be broken down into parts in a variety of ways. This study will use an operational net assessment approach to do a system-of-system analysis of the Arctic region. This approach will analyze the region using PMESII, which looks at the political, military, economic, social, infrastructure, and

³² Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, (London: Frank Cass, 1997), 14.

³³ Elisabeth Mann Borgese, *Ocean Governance and the United Nations* (Halifax, Nova Scotia: Centre for Foreign Policy Studies, 1996), 13-18.

informational parts of the system. First, each of the PMESII parts will be displayed and analyzed individually. Then, critical nodes (people and things) and links (relationships between nodes) will be highlighted in order to view the dynamic interaction of these elements, and the subsequent organization that emerges. This will lead to a view of the system's potential, which is critical in answering the research question of whether the Arctic will reemerge as a strategic location. Chapter 3 will complete the operational net assessment by identifying strengths, weaknesses, opportunities, and threats in each area of the instruments of national power – diplomatic, informational, military, and economic (DIME) to highlight where the U.S. government can take action on the PMESII system of the Arctic.

³⁴ Senator Richard G. Luger, Opening Statement for Hearing on the UN Convention on the Law of the Sea, on October 4, 2007, to the Committee on Foreign Relations <http://www.senate.gov/~foreign/testimony/2007/Luger> (accessed October 8, 2007).

Political Summary of the System

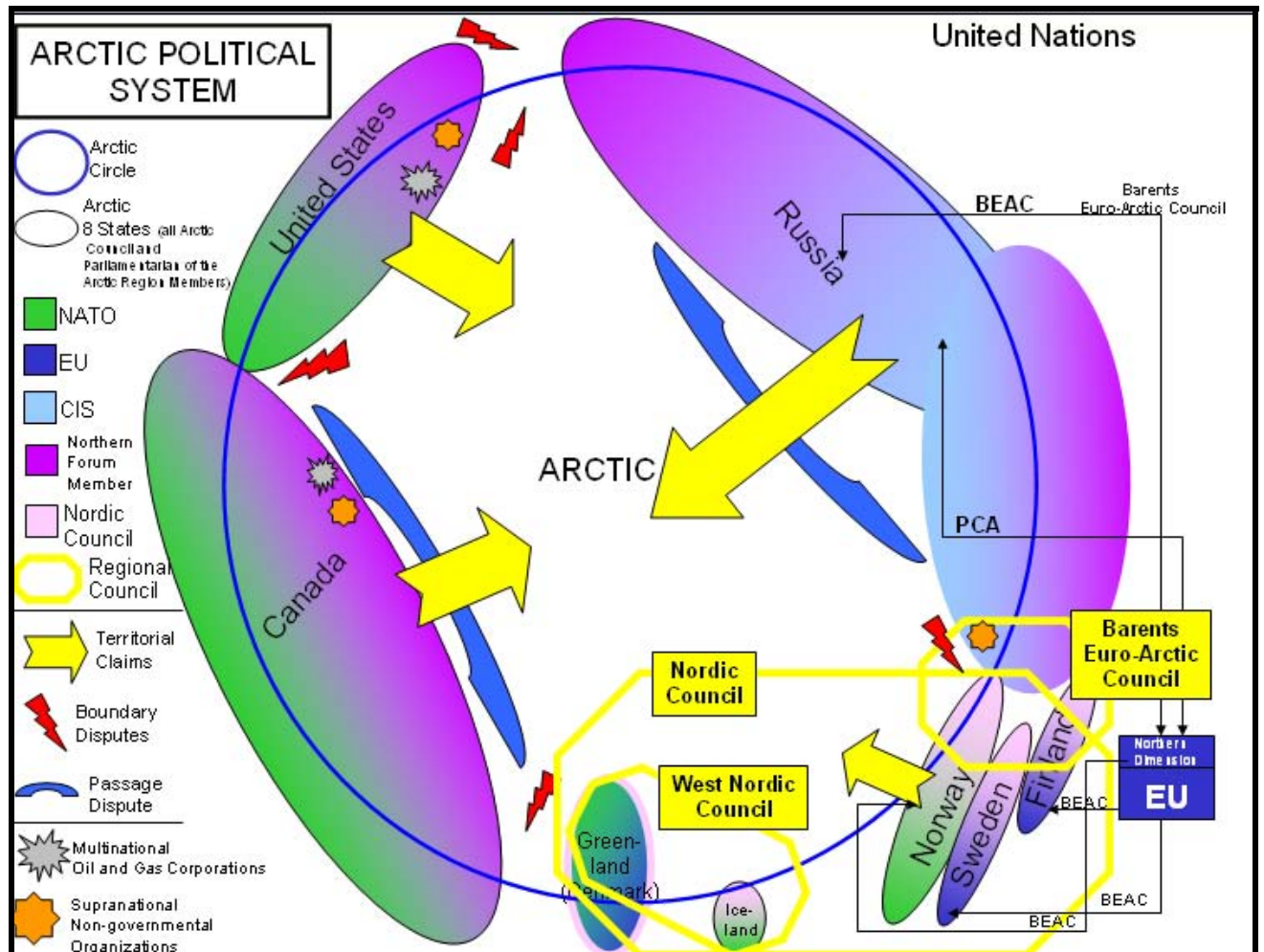


Figure 3

Key Judgments:

With the previously existing security alliances between some of the Arctic eight states and the establishment of the Arctic Council in 1996, the Arctic political system exhibits some buffering for disputes that arise. However, the preeminent Arctic power, the Russian Federation, is also the most politically isolated. There are a significant number of disputed territorial claims, boundary disputes, and passage disputes that could reduce the buffer if tensions are already high.

International relations in the Arctic are conducted by five different categories of international actors as shown in Figure 3: unified states, such as Canada, Sweden [depicted as ovals]; intergovernmental organizations (IGOs), such as the Arctic Council and the Barents Euro-Arctic Council [depicted in yellow]; international non-governmental organizations, such as the Inuit Circumpolar Conference and the Northern Forum [depicted as purple shading within state]; sub-national governments, such as Russian Association of Indigenous Peoples of the North (RAIPON) [depicted in Arctic social system] ; and trans-national corporations, such as oil, gas, and mining companies [depicted as gray and orange stars].³⁵ The influence of so many actors in the system creates a tension, especially between the unified state government (which may be concerned with control and sovereignty) and all the other actors.

Within the Arctic states, authority and responsibility is shifting away from the center to the regions. In regions of states with an indigenous majority, this “devolution” of political authority has been done through public governments. In regions of states with an indigenous minority, devolution has meant dual system of governments, with indigenous political arrangements and public government operating in the same geographical area.³⁶ These arrangements are contributing to multiple political identities in the Arctic peoples, which can affect the system if the multiple identities are incompatible.

Strengths of the Arctic Political System:

The long-term alliances between certain member States are a significant strength of the system. For example, Canada, the United States, Greenland, Iceland, and Norway are all

³⁵ Lassi Heininen, “Circumpolar International Relations and Geopolitics,” in *The Arctic Human Development Report* (Akureyi: Stefansson Arctic Institute, 2004), 209.

³⁶ Else Grete Broderstad and Jens Dahl, “Political Systems,” in *The Arctic Human Development Report* (Akureyi: Stefansson Arctic Institute, 2004), 95.

members of North Atlantic Treaty Organization (NATO) [depicted by green coloring of the state in Figure 3], and share the success of Cold War cooperation that led to the downfall of the Soviet Union. A political dispute among them would risk a long-standing relationship. Sweden, Finland, and Greenland are members of the European Union (EU) [depicted by blue coloring of the state in Figure 3], and as such are tied politically and economically to each other. The Russian Federation is not a member of the EU, but the Partnership and Cooperation Agreement (PCA), which has been in force since 1997 and functions as the bilateral basis for relations. The PCA covers a wide range of policy areas, including political dialogue, trade, business and investment, science and technology, education, environment, energy cooperation, and culture. It includes an institutional framework for regular meetings between the EU and Russia. The heads of state meet twice a year and ministers meet as necessary, while political dialogue takes place either at the Foreign Ministers Troika meetings or at the parliament-duma level at the Parliamentary Cooperation Committee (PCC). Since 2003, Russia has refused to hold subcommittee meetings (expert/senior official level), and the PCC has not met since 2004.³⁷

There are regional political bodies that also establish and affirm relationships among the eight Arctic states. The Nordic members of the Arctic Eight all belong to the Nordic Council, which was formed in 1952 for parliamentary cooperation among members. The members of the Nordic Council are all members of their respective state government. Recommended action is submitted through state parliaments, with the representative required to report back on his states' action.³⁸ The five Nordic states, the Russian Federation, and the European Commission (EC) are involved in the Barents Euro-Arctic Regional (BEAR) Council. The EC started BEAR in

³⁷ European Union, External Relations, "EU-Russia Relations," http://ec.europa.eu/external_relations/russia/intro/index.htm (accessed March 13, 2008).

³⁸ Norden, "About the Nordic Council," http://www.norden.org/nr/uk/3-1-4-0-om_nr.asp?lang=6 accessed January 15, 2008.

1993, as a way to reach out to the Russian Federation, and to foster cooperation among all members in seven areas: the environment, science and technology, industry, infrastructure, culture, terrorism, and indigenous peoples' issues.³⁹ It is another organization that does not focus on politics, but can influence the political system.

The eight Arctic states and northern indigenous peoples' organizations established the Arctic Council in 1996, based on a Canadian initiative. The original mandate for the Council is not political; its pillars are environmental protection and sustainable development, and the "...basic responsibility for the implementation of regional policies lies with the states and their sub-regional administrations."⁴⁰ However, this forum does have a role in policy formulation at local, regional, and national level as Arctic states' officials establish a common knowledge base and share information on best practices.⁴¹

Within the states themselves, there is a growing trend toward "devolution," or authority and responsibility shifting away from the center. Although Denmark has sovereignty over Greenland, the island has had Home Rule since 1986, with authority over most issues except foreign affairs, defense, and the monetary system.⁴² In the western Arctic, the governments settled land claims and allowed the indigenous peoples to establish their local government system. For example, in Canada different land claim deals created different orders of northern government, "...from the establishment of Aboriginal self-government in Nunavut to the groundbreaking Tlicho (Dogrib) claim in the Northwest Territories, which set up a regional

³⁹ Oran Young, *Creating Regimes: Arctic Accords and International Governance* (Ithaca, NY: Cornell University Press, 1998), 40.

⁴⁰ Lassi Heininen and Heather Nicol, "The Importance of Northern Dimension Foreign Policies in the Geopolitics of the Circumpolar North," *Geopolitics* 12, no. 1 (Spring 2007), 139.

⁴¹ Ibid.

⁴² Oran Young and Gail Oshrenko, eds., *Arctic Politics: Conflict and Cooperation in the Circumpolar North* (Hanover, NH: University Press of New England, 1992), 19.

government responsible for delivering a variety of services.”⁴³ In the Nordic states of Norway and Finland, Sami Parliaments have been established. The late King Olav V opened the Norwegian Sami Parliament in October 1989 as a “national body, subordinate to general regulations of public administration, [which] deals with all matters considered to be of importance to the Sami people. It may on its own initiative submit issues to public authorities and private institutions.”⁴⁴ These changes in governance are seen to promote “...a level of competence at the community and regional level that is giving rise... to imaginative... initiatives.”⁴⁵

The United Nations provides the outer boundary for this political system, as all eight Arctic states are members, and two – the Russian Federation and the United States – are Permanent Members of the UN Security Council. Along with the other three permanent members and the ten non-permanent (rotated every two years), this role could be significant in the future if a security council resolution was needed to resolve a dispute.⁴⁶ The United Nations is a significant political boundary not only because of the Security Council, but also because of the UNCLOS. Within 10 years of ratifying the convention within its own country, a state that wants to extend its exclusive economic zone to up to 350 nautical miles due to an extended continental shelf must submit its territorial claim.⁴⁷ This extension based on continental shelf could possibly apply to all coastal Arctic states.

⁴³ “A Federal Presence in the North?” *Northern Perspectives* 30, no. 1 (2006), 4.

⁴⁴ Elina Helander, “The Sami of Norway,” http://www.reisenett.no/norway/facts/culture_sceince/sami.html (accessed January 8, 2008).

⁴⁵ “Governance: Perspectives on Treaty-Making, Devolution, Globalization, and Security,” from *A Report and Recommendations for Canadian Foreign Policy in the Circumpolar Arctic*, <http://www.carc.org/calgary/r3.htm> (accessed October 8, 2007).

⁴⁶ United Nations, “Members,” <http://www.un.org/sc/members.asp> (accessed 10 January 2008).

⁴⁷ Louis B. Sohn and Kristen Gustafson, *The Law of the Sea* (St. Paul, MN: West Publishing Company, 1984), 158.

Supranational environmental organizations exhibit the ability to influence all Arctic States, and foster bilateral and multilateral agreements among them, within the scope of their area of concern. For example, the World Wildlife Fund has its main International Arctic Programme office in Oslo, Norway, but also maintains offices in each of the other Arctic Eight States.⁴⁸ One of their recent victories was the Russian-American bilateral agreement for long-term conservation of shared polar bear populations in Alaska and Chukotka, Russia.⁴⁹ Again, this type of coordination among nations fosters relationships that may ease tensions during a critical time period.

Vulnerabilities of the Arctic Political System:

Although there are many different councils for addressing the environment, indigenous groups' concerns, marine life, etc., there is no high-level Arctic-specific council with authority to address the territorial claims, boundary disputes, and passage disputes among the Arctic eight states. The states either have to address the issues bilaterally or multilaterally, or, if they have signed UNCLOS, they can submit them to the International Tribunal for the Law of the Sea, the International Court of Justice, or UN special arbitration.⁵⁰ As can be seen in Figure 3, there are five significant boundary disputes and two passage disputes that are unresolved. The trend during the Cold War was to leave well enough alone because state security and survivability was paramount, and alliances were a critical component. Now that the conditions of the system have changed, including the end of the Cold War and the melting of the ice in the Arctic, these disputes have resurfaced. They can no longer be left unresolved, but there is no Arctic eight state-specific

⁴⁸ World Wildlife Federation, "Arctic Bulletin," No. 3.06 (October 24, 2006).

⁴⁹ World Wildlife Federation, "US-Russia Polar Bear Treaty Ratified," http://www.panda.org/about_wwf/where_we_work/europe/what_we_do/arctic/news/index (accessed October 8, 2007).

means to address them. Further, as the main antagonist in the Cold War, Russia, the largest and most populous Arctic state, is somewhat politically isolated from the others, without 50 years of goodwill through alliance relationships built up with any other state.

In addition to the external relations between the Arctic states, all states' political systems are affected by their internal north-south relationship. In all of the Arctic states, the central government is significantly removed by geographic distance from the Arctic area, comparative to each states' size. In at least two states – the Russian Federation and Canada – the northern regions/republics are semi-autonomous, with authority given to local indigenous groups.⁵¹ As previously discussed, this devolution of authority, while positive for the local inhabitants, may create a political tension that can affect the Arctic states' overall behavior toward each other.

The multinational oil and gas corporations that are present throughout the Arctic contribute to some of the tension among the states through their competitive nature and business practices. In at least two states, these corporations are competing against partially government controlled oil and/or gas companies, such as Statoil in Norway and Gazprom in Russia. In most states, they team with a local hydrocarbon corporation because the local corporation knows the operating environment and the multinational corporation has the resources, especially funding, to export the oil or gas.⁵² Due to the large amount of money these multinational corporations earn,

⁵⁰ Borgese, *Ocean Governance and the United Nations*, 31.

⁵¹ Daniel Triesman, "The Politics of Intergovernmental Transfers in Post-Soviet Russia," *British Journal of Political Science* 26, no. 3 (July 1996), 302-303 and R.G. Ironside, "Canadian Northern Settlements, Top-Down and Bottom-Up Influences," *Geografiska Annaler. Series B, Human Geography* 82, no. 2 (2000), 130.

⁵² For example, British Petroleum (BP) operates in Russia as TNK-BP. BP owns half of TNK-BP, with the other half owned by Russian investors. Most of the assets are in Russia, and it employs 90,000 people. It operates in Russia's major hydrocarbon regions, including East and West Siberia. From "TNK-BP" <http://www.bp.com/sectiongenericarticle.do?categoryId=9002155&contentId=7004030> (accessed January 14, 2008).

they have the ability to influence the politics of the eight Arctic states. Due to the competitive nature of their business, they reinforce competition between the states.

Essential Elements of the Political System:

Political Isolation. The Russian Federation was the only Arctic state on the other side during the Cold War. It is not an EU or NATO member, but rather a member of the Commonwealth of Independent States (CIS).

Secondary Significance. After the Cold War ended, the importance of the region declined, and the States' central governments turned to other issues, leaving the Arctic with its legacies of unresolved territorial claims and boundary and passage disputes. Some governments have even been accused of "benign neglect" of their northern regions.

Legacy of Cooperation. Seven of the eight Arctic States were allies during the Cold War, and five of those were NATO members, bound to defend each other.

Devolution. In many Arctic states, governance of the northern regions is being turned over to the indigenous peoples. Although this is seen as a success at the community and regional level, a tension remains as to who makes, or ultimately approves, policy that affects the region itself and areas outside the region.

Military Summary of the System

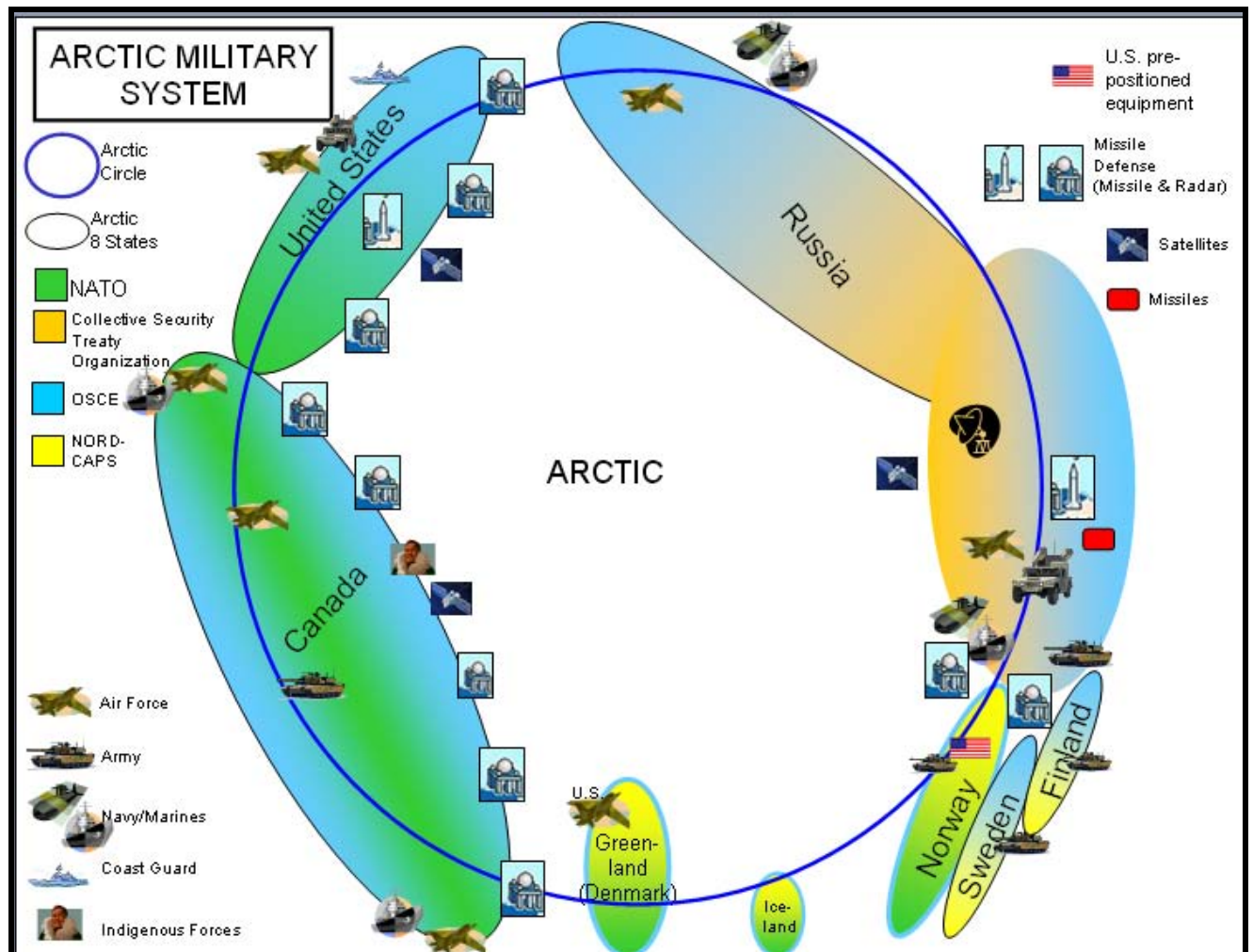


Figure 4

Key Judgment:

The Cold War legacy still greatly influences the Arctic military system, as the main antagonists still maintain strategic missile capabilities, and still use early warning systems to protect their states. In some ways and for some states, this legacy has positive effects, such as the Arctic-based Russian naval capability. In other ways and for other states, this legacy has negative effects, such as a limited capacity for security due to reliance on an alliance that has now moved many forces out of the area.

Strengths of the Arctic Military System:

Just as the long-term alliances between certain member States were a significant strength of the political system, they are also strength of the military system. Canada, the United States, Greenland, Iceland, and Norway are all members of NATO [depicted in green in Figure 4]. As such, their militaries have established relationships by conducting exercises and operations, and they share the victory in the Cold War. Although tensions between them do arise, a military dispute among them would risk a long-standing relationship.

Regional military cooperation is also strong between members of the Arctic eight states. All eight are members of the Organization for Security and Co-operation in Europe (OSCE) [depicted in light blue], which deals with three dimensions of security – politico-military, economic and environmental, and human – and is the “...primary instrument for early warning, conflict prevention, crisis management, and post-conflict rehabilitation in its area.”⁵³ Decisions are politically, but not legally, binding. Additionally, the Nordic countries of Norway, Sweden, Finland, Denmark, and Iceland have participated in the Nordic Coordinated Arrangement for Military Peace Support (NORDCAPS) since 1997 [depicted in yellow in Figure 4]. The stated purpose of this organization is “...to adapt and further develop Nordic co-operation within the area of military peace support operations (PSO), utilizing the proven ability of Nordic military interaction and enhancing the Nordic profile in such operations, in order to achieve more beneficial efforts to support international peace and security.”⁵⁴

⁵³ Organization for Security and Cooperation in Europe, “OSCE: About – Facts and figures,” <http://www.osce.org/about/19298.html> (accessed January 15, 2008).

⁵⁴ Nordic Coordinated Arrangement for Military Peace Support, “NORDCAPS” <http://www.nordcaps.org/?id=80> (accessed January 15, 2008).

Military cooperation between the United States and Canada, especially in missile defense, is also strong. The North American Aerospace Defense Command (NORAD), based at Peterson Air Force Base in Colorado is a bi-national command, manned by American and Canadian soldiers. The deputy commander is a Canadian lieutenant general. In his visit to NORAD on April 11, 2008, the Honorable Mr. Peter Gordon McKay, the Canadian Minister of National Defense, "...acknowledged the critical role NORAD plays in preserving the relationship between the U.S. and Canadian militaries."⁵⁵ There is also a new, evolving relationship between NORTHCOM, which is responsible to provide military support to homeland defense and civil support missions, and CANADA COMMAND, which formed in February 2006. It is responsible for the conduct of all routine and emergency military operations in Canada.⁵⁶ As the Arctic region changes, it will be in both organizations' interests to build upon the foundation provided by NORAD to develop deeper military ties.

Canada has begun to expand its capacity to defend its interests in the Arctic region. Beginning in 2003, it began to patrol "...the most remote Arctic reaches with army rangers, a mostly Eskimo force of 1,500 irregulars."⁵⁷ And, in 2006, it launched the Radarstat-2 satellite system, which will allow "...surveillance of the Arctic and sea approaches as far as 1,000 miles offshore."⁵⁸ Even with these improvements, the Canadians need to further expand their capacity. Governor General Michaëlle Jean recognized this in her October 2007 "Speech from the Throne" when she stated: "Defending our sovereignty in the North also demands that we maintain the

⁵⁵ Petty Officer First Class Joaquin Juatai, "Canada's Minister of Defence Visits NORAD, USNORTHCOM," <http://www.norad.mil/News/2008/041408.html> (accessed April 21, 2008).

⁵⁶ Government of Canada, National Defense, "Welcome to CANADA COMMAND," http://www.canadacom.forces.gc.ca/en/index_e.asp (accessed April 21, 2008).

⁵⁷ Clifford Kraus, Steven Lee Myers, Andrew C. Revkin and Simon Romero, "As Polar Ice Turns to Water, Dreams of Treasure Abound," *New York Times*, October 10, 2005.

⁵⁸ Ibid.

capacity to act. New arctic patrol ships and expanded aerial surveillance will guard Canada's Far North and the Northwest Passage. As well, the size and capabilities of the Arctic Rangers will be expanded to better patrol our vast Arctic territory.”⁵⁹

Vulnerabilities of the Arctic Military System:

Just as the Russian Federation was somewhat politically isolated due to the Cold War system, it is also somewhat isolated in the military system. This is a serious vulnerability, as it has by far the greatest amount of military forces within the Arctic Circle. The Kola Peninsula, which was militarized during the Cold War, is even more important to the Russians now because they have lost many of their southern ports.⁶⁰ The Russian Northern Fleet is based there, including its strategic nuclear submarines. The missile defense systems are still in place as a legacy of the Cold War, as well as nuclear missile launch capability.⁶¹ The Russian Air Force restarted its long-range strategic bomber patrols in August 2007, after a 15-year suspension due to lack of funding for fuel. The bombers have patrolled the Arctic, including the North Pole, and have provoked NATO response by patrolling close to Scotland.⁶²

Despite the Russian Federation's recent economic gains due to the higher prices of oil and natural gas, its Armed Forces face problems from years of neglect after the end of the Cold

⁵⁹ CTV.ca, “Full Text of Speech from the Throne,” http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071016/thronespeech_SIDEBARS_071016/20071016/ (accessed February 7, 2008).

⁶⁰ Gennady P. Luzin, Michael Pretes, and Vladimir Vasiliev, “The Kola Peninsula: Geography, History, and Resources,” *Arctic* 47, no. 1 (1994), 7 <http://pubs.aina.ucalgary.ca/arctic/Arctic47-1-1.pdf> (accessed November 25, 2007).

⁶¹ Jane's Defence Weekly, “Russia's Strategic Forces Stumble,” October 2, 2000, http://www.janes.com/security/international_security/news/jir/jir001002_1_n.shtml (accessed January 15, 2008).

⁶² BBC News, “Russia Restarts Cold War Patrols,” August 17, 2007, <http://newsvote.bbc.co.uk/mpapps/pagetools/print/news.bbc.co.uk/2/hi/europe/6950986.stm> (accessed November 15, 2007).

War. Many systems, including nuclear submarines and nuclear missiles, have reached the end of their operational life, but were not retired due to funding issues.⁶³ In many cases, they are still being used, creating fear of incident or accident in the other Arctic eight states.

Although Cold War alliances proved beneficial overall, some decisions made during that time are now vulnerabilities in the Arctic military system. For example, most Nordic countries were able to field relatively small militaries despite the near Soviet threat because they were relying on the United States to become immediately involved if they were attacked. One state, Iceland, completely relied on alliances and never established a military at all. With a significant number of U.S. forces now returned back to the continental U.S. from Europe, and the U.S. focus in the Middle East, these Nordic militaries may not be large enough to guarantee security if the Russian threat reemerges.⁶⁴

Of the eight Arctic states, only the Russian Federation and Canada have begun to posture themselves for future operations in the Arctic. For example, the Canadian government conducted Operation NANOOK in August 2007 in order to gage its ability to respond jointly to potential threats, such as drug smuggling and environmental disasters.⁶⁵ As previously mentioned, the Russians routinely conduct long-range bomber patrols, and they relocated much of their Navy to the Northern Fleet. Additionally, only three states are protected with an early warning system.

⁶³ Jane's Defence Weekly, "Russia's Strategic Forces Stumble," October 2, 2000 www.janes.com/security/international_security/news/jir/jir001002_1_n.shtml (accessed January 15, 2008).

⁶⁴ The U.S. Naval Air Station in Iceland closed in 2006. Navy News, "Last U.S. Servicemembers to Leave Iceland Sept. 30," http://www.news.navy.mil/search/print.asp?story_id=25809&VIRIN=39001&imagetype (accessed October 11, 2007). The U.S. Air Base at Thule is focused on missile warning and space surveillance, with no dedicated air wing. Thule Air Base, "Fact Sheet," http://www.thule.af.mil/library/factsheets/factsheet_print.asp?fsID=4885&page=1 (accessed October 11, 2007). The U.S. Marines have a brigade's worth of equipment pre-positioned in Norway. Kathleen T. Rhem, American Forces Press Service, "Rumsfeld Signs Pre-positioning Agreement with Norway," <http://www.defenselink.mil/utility/printitem.aspx?print> (accessed November 7, 2007).

⁶⁵ *The Maple Leaf*, "Canada Command Completes Largest Deployment to Date in the North," <http://www.forces.gc.ca/site/communitymapleL> (accessed September 29, 2007).

Canada and the United States have the Northern Warning System, which is a RADAR-based system able to detect either missiles or aircraft. The Russian Federation also has a warning system, but it does not extend the length of its Arctic coast as does the Canadian-American one. It only covers the western-most portion, particularly the Kola Peninsula and Moscow.⁶⁶ The absence of military forces and early warning systems could leave the other states with a feeling of vulnerability, and a question of how to address that vulnerability, and how to secure their resources and territory. Additionally, there is precedence for sparring for resources, such as happened during the 1976 “Cod Wars” between Britain and Iceland.⁶⁷ Beyond resources, territorial claims could easily heighten tensions, with only a few Arctic states militarily postured to respond immediately to a threat.

⁶⁶ Canada, National Defence, “Northern Warning System,” http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=411 (accessed October 5, 2007).

⁶⁷ Hannes Jonsson, *Friends in Conflict: The Anglo-Icelandic Cod Wars and the Law of the Sea* (Hamden, CT: Shoestring Press, 1982).

Essential Elements of the Military System:

Cold War Legacy. Both the United States and the Russian Federation still have strategic missiles aimed at each other, and both maintain an early warning system. The other states do not have the military capability to secure their claims to resources and territory because they maintained small militaries during the Cold War, relying on the United States to provide for their security.

Military Isolation. The Russian Federation is not a member of NATO, but of the Collective Security Treaty Organization. As such, it does not conduct combined exercises with the other Arctic States. It also increased its naval capacity in the Arctic as it moved a significant portion of its fleet to the Northern Fleet as it lost warm-water ports post-Cold War. However, the operational capability of its navy is said to be diminished due to lack of funds for maintenance.

Relocation. Since the end of the Cold War, the U.S. has greatly reduced its forces in Germany, and has also removed forces from Iceland and Greenland. This has reduced the U.S. response to an immediate threat.

Economic Summary of the System

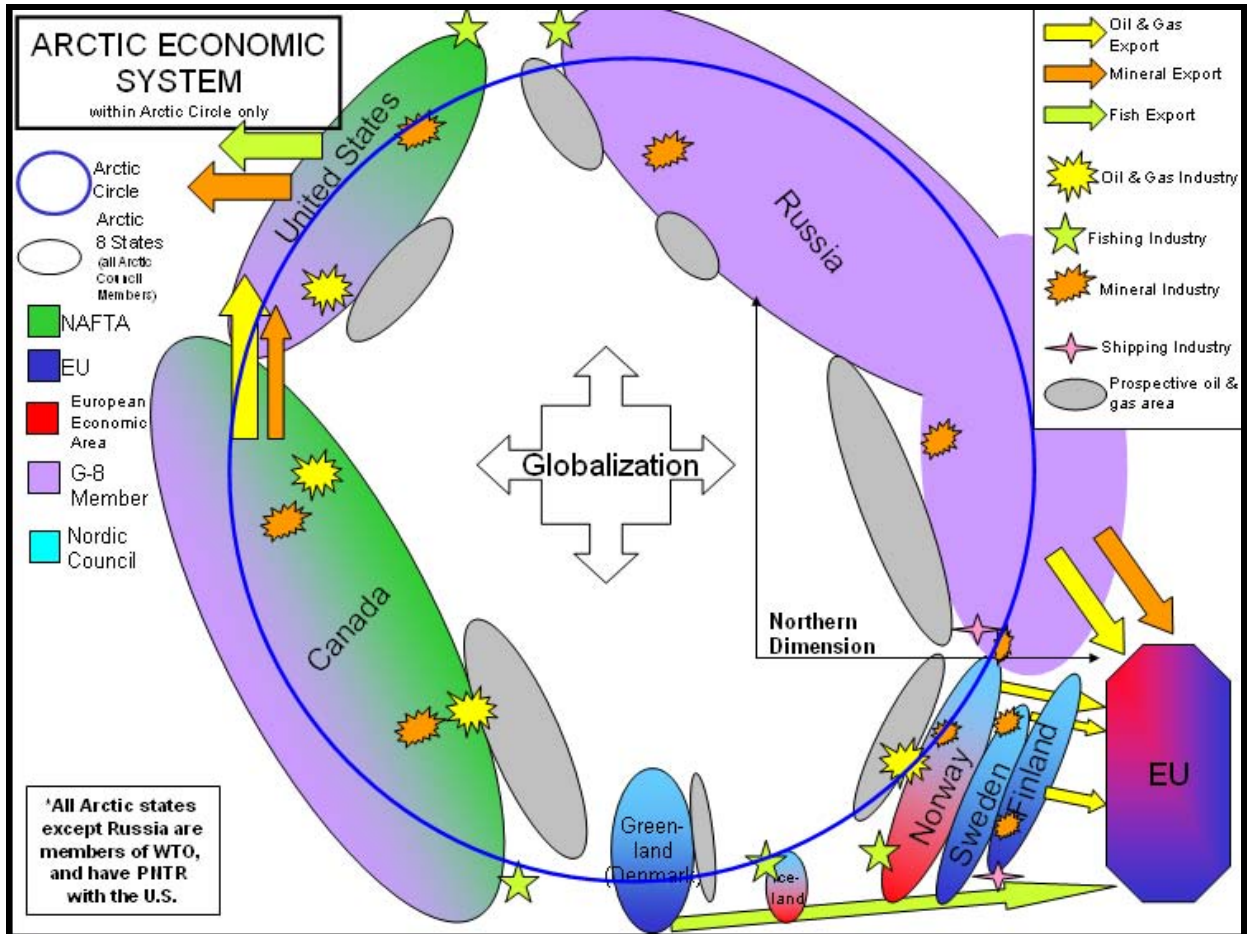


Figure 5

Key Judgments:

The EU [depicted in dark blue in Figure 5] provides significant strength in the Arctic economic system as a uniting force among the Arctic states' economies. As an energy resource provider, the Arctic is subject to cyclic economic activity. This cyclic activity used to be based solely on variables that occurred outside the region, such as stability in the Middle East and

current worldwide supply and demand.⁶⁸ Now it is also affected by the climate changes in the Arctic itself, which could potentially lower the price of resource extraction. Within the Arctic Circle itself, Arctic communities exhibit “Fourth World” features. They supply raw materials to industries located elsewhere.⁶⁹ They also rely on subsistence activities to supplement their income.

Strengths of the Arctic Economic System:

Three of the Arctic states are members of the Group of Eight (G8) leading industrialized nations [depicted in purple]. The heads of the G8 states meet annually to discuss major economic and political issues, with ministerial meetings attended by lower-ranking ministers as needed throughout the year. Although recent meetings have addressed conflict prevention, the consistent focus since 1975 has been macroeconomic management, trade, and relations with developing countries.⁷⁰ Membership in the G8 provides three of the Arctic states an avenue to discuss economic policy at the ministerial level and higher.

The Arctic eight states have economic agreements, councils, and communities that commit them to fair trade with other Arctic states. For example, the United States and Canada are members of the North American Free Trade Agreement (NAFTA) [depicted in green], which established free trade among those two countries and Mexico. Since its implementation in 1993,

⁶⁸ Franklyn Griffiths, “The Arctic as an International Political Region,” in *The Arctic Challenge: Nordic and Canadian Approaches to Security and Cooperation in an Emerging International Region*, ed. Kari Mottola (Boulder, CO: Westview Press, 1993), 2.

⁶⁹ Oran Young, “Sustainable Development in the Arctic”, in *Arctic Politics: Conflict and Cooperation in the Circumpolar North*, ed. Oran Young (Hanover, NH: University Press of New England, 1992), 222.

⁷⁰ John Kirkton and Radoslava N. Stefanova, eds., *The G8, the United Nations, and Conflict Prevention (G8 and Global Governance)* (Burlington, VT: Ashgate Publishing Company, 2004), 5 and University of Toronto G8 Research Group, “What is the G8?” http://www.g7.utoronto.ca/what_is_g8.html (accessed February 20, 2008).

the real GDP growth for all three countries has been more than 40%.⁷¹ Finland, Sweden, and Greenland are members of the EU. As such, they participate in the Economic and Monetary Union, which coordinates economic and fiscal policies in order to achieve economic integration based on a single market. Of those three, only Finland has adopted the Euro as its form of currency.⁷² Iceland and Norway participate in the European Economic Area Agreement [depicted in red], which allows them to participate in the EU's Internal Market without assuming the full responsibilities of EU membership.⁷³

Six out of eight of the Arctic eight states' economies are significantly tied to the EU. Forty percent of Russia's exports go to the EU, as do 68 percent of Greenland's, 62 percent of Norway's, 44 percent of Sweden's, 51 percent of Iceland's, and 32 percent of Finland's.⁷⁴ As such a critical economic player among Arctic states, the EU has attempted to incorporate the once-again isolated Russian Federation with its Northern Dimension initiative, which was founded after the break up of the Soviet Union to promote security and stability in the Nordic countries, Baltic States, and Russia. One of the key themes is economy, business, and infrastructure, and one critical objective is addressing the challenges arising from uneven regional development with the aim of avoiding new dividing lines in Europe based on EU membership.⁷⁵

⁷¹ Office of the United States Trade Representative, "Trade Facts," March 2006, http://www.ustr.gov/assets/Document_Library/Fact_Sheets/2006/asset_upload_file242_9156.pdf (accessed January 15, 2008).

⁷² European Commission, "Economic and Financial Affairs," http://ec.europa.eu/economy_finance/the_euro/index_en.htm?cs_mid=2946 (accessed January 15, 2008).

⁷³ European Union, "External Relations – The European Economic Area," http://ec.europa.eu/external_relations/eea/index.htm accessed January 15, 2008.

⁷⁴ CIA, "The World Factbook – Russia, Greenland, Norway, Sweden, Iceland, and Finland," https://www.cia.gov/library/publications/the-world-factbook/geos/**.html, (accessed January 15, 2008).

⁷⁵ European Parliament Brussels Conference Report 2007, "The New Northern Dimension Policy," <http://www.arcticparl.org/resource/images/Final%20version%20Report%20on%20ND%20Parl%20Conference.pdf>, (accessed September 25, 2007).

Within the Arctic region of the Arctic states, economies are fragile but have the potential to improve. For example, in Canada the settlement of indigenous peoples' land claims has given them "...money and a framework to develop and expand economic development activities. New emerging businesses include real estate, tourism, airlines, and offshore fisheries."⁷⁶ Additionally, there are smaller regional economic forums, some of which are the economic arm of a political organization. For example, the Nordic Council, previously discussed as a parliamentary body, focuses one of its four committees on Business and Industry. This committee "...deals with frameworks and parameters for the economy, production, and trade, including free movement in the markets and in the labor markets of Nordic countries."⁷⁷

Vulnerabilities of the Arctic Economic System:

The Russian Federation is the only Arctic state that is not a member of the World Trade Organization (WTO). It has attempted to meet the standards during the Putin Administration because he views "WTO membership as an important step in integrating the Russian economy with the rest of the world and promoting economic reform."⁷⁸ The U.S. has continually supported their accession, and the two countries signed a bilateral agreement as part of the process for their accession in November 2006. It still needs to complete negotiations with a WTO Working Party.⁷⁹ The Russian Federation is also the only Arctic state that does not have Permanent Normal Trade Relations (PNTR) with the United States. It requires an annual waiver

⁷⁶ Department of Indian and Northern Affairs, "Inuit Information Sheet," http://www.ainc-inac.gc.ca/pr/info/info114_e.html (accessed January 8, 2008).

⁷⁷ Norden, Nordic Council, "The Nordic Community," http://www.norden.org/faktab/uk/nr_generel.pdf (accessed January 15, 2008).

⁷⁸ William H. Cooper, "Permanent Normal Trade Relations (PNTR) Status for Russia and U.S.-Russian Economic Ties," *Congressional Research Service Report for Congress*, updated July 10, 2007, 5.

⁷⁹ Ibid.

due to its immigration policies. This is a source of tension between the two states, as other states with questionable immigration and human rights policies, such as China, do have PNTR.⁸⁰

The Russian Federation is the only Arctic state that has established a true northern economy. It did so as part of the Soviet plan to establish the Northern Sea Route (NSR), which involves coastal trade to transport raw materials, such as timber and minerals, to Murmansk or Archangelsk, and equipment and other supplies to the population centers in Siberia. From the 1930s onward, it was a matter of explicit Soviet policy to invest heavily in infrastructure to develop this route, with responsibility given to a separate agency called the Administration of the Northern Sea Route.⁸¹ Currently, in terms of "...production, output, manpower, number of settlements, geographical scope of activity, and composition and range of activities, the NSR and its adjacent land territories are the most pronounced exploitation areas in the whole of the Arctic."⁸²

Within the Arctic Circle, the economies have been described as "Fourth World," exhibiting features that are characteristic of less-developed economies, such as "...a tendency to become monocultures oriented toward the supply of raw materials to industries located elsewhere."⁸³ Beyond employment with the resource extracting corporations, northern people are typically involved in subsistence activities, such as hunting and fishing. For example, the occupations of the Sami people of the Nordic states include reindeer herding, fishing, farming,

⁸⁰ Ibid, 2.

⁸¹ Dr Alexander Arikainen, "Arctic Shipping: A Tale of Two Passages," in *Arctic Politics: Conflict and Cooperation in the Circumpolar North*, Oran Young and Gail Oshrenko, eds., (Hanover, NH: University Press of New England, 1992), 160.

⁸² Willy Ostreng, *National Security and International Environmental Cooperation in the Arctic: The Case of the Northern Sea Route* (Dordrecht, The Netherlands: Kluwer Academic, 1999), 3.

⁸³ "Sustainable Development in the Arctic" in *Arctic Politics: Conflict and Cooperation in the Circumpolar North*, Oran Young and Gail Oshrenko, eds., (Hanover: University Press of New England, 1992), 222.

small-scale industry, and handicrafts.⁸⁴ In Canada, the Inuit work in mining, oil and gas, construction, tourism, and administrative services; many supplement their income through hunting, sculpture, carving, and print making.⁸⁵

The northern residents of Arctic states live within two economies. One is the subsistence economy, as discussed above. The second is the global economy, which appears in the Arctic as resource extraction businesses and their support systems.⁸⁶ These resources, mainly hydrocarbons and minerals, are subject to the cyclic economic activity. Worldwide supply and demand affect whether resource extraction from the Arctic region will be profitable. When it is not, such as when oil prices per barrel drop, economic activity slows. This is very damaging to the Arctic region because their other economy, the subsistence economy, does not provide for all of their needs. It only supplements the income provided by the world economy. For example, in Alaska the 10,000 Inuit living in the North Slope Borough receive "...the bulk of [their] \$98 million budget each year from taxing onshore oil operations."⁸⁷ However, the cyclic nature of this economy means that the \$98 million may only be \$60 million the next year.

Essential Elements of the Economic System:

EU Integration. All of the Arctic eight states have significant ties into the EU market.

⁸⁴ Elina Helander, "The Sami of Norway," http://www.reisenett.no/norway/facts/culture_sceince/sami.html (accessed January 8, 2008).

⁸⁵ Department of Indian and Northern Affairs, "Inuit Information Sheet," http://www.ainc-inac.gc.ca/pr/info/info114_e.html (accessed January 8, 2008).

⁸⁶ The idea of the Arctic peoples living with two economies was suggested by Mr. Kevin Banks, Director, Department of Natural Resources for the State of Alaska, interviewed by author, Anchorage, AK, 13 December 2007.

⁸⁷ Jad Mouawad, "Tension at the Edge of Alaska," *New York Times*, December 4, 2007, C10.

Disparity in Internal Linkages and Economic Development. The eastern Arctic is far more commercially developed and economically integrated than the western Arctic. Due to significant Soviet investment in infrastructure, Russia's Northern Sea Route is an established shipping route that links Siberian River communities to Russian ports at Murmansk and Archangelsk. On the western side of the Arctic, the Northwest Passage is still jurisdictionally disputed and underdeveloped.

Two Economies. The residents of the Arctic regions of the Arctic states live in two economies – a subsistence economy and the global economy. The subsistence economy does not provide all they need, and the global economic is subject to cyclical activity.

Social Summary of the System

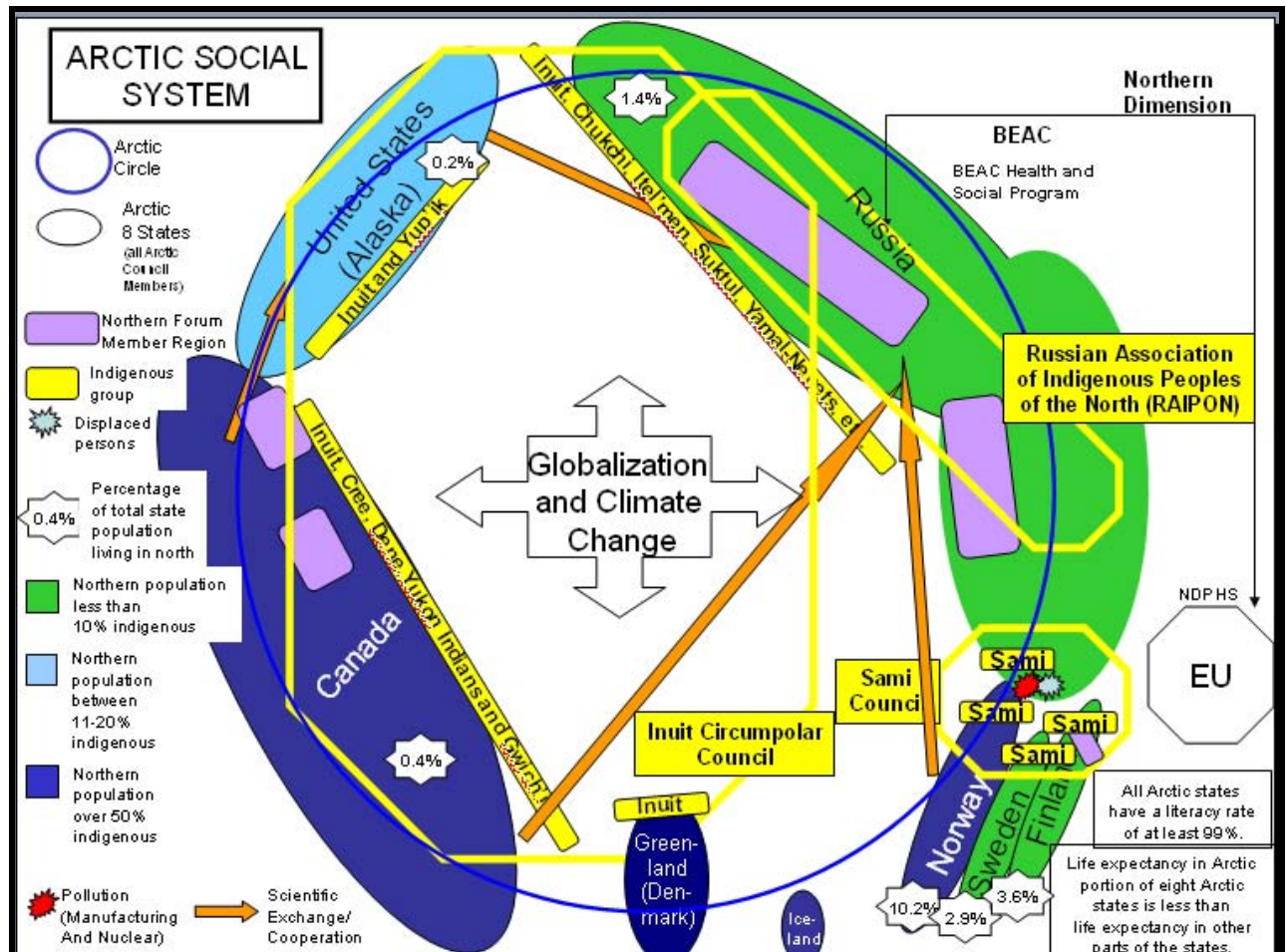


Figure 6

Key Judgments:

Indigenous groups [depicted in yellow in Figure 6] throughout the Arctic have strengthened their social systems through the creation of councils, which represent their concerns and issues at many levels, including the Arctic Council. Social systems are better for indigenous personnel who have settled land claims with their respective governments. In the future, all Arctic residents will struggle with development, quality of life, and preservation of culture.

Strengths of the Arctic Social System:

Within the last 50 years, indigenous peoples in the Arctic have begun to band together, irrespective of their home state, to tackle issues common to them. The Inuit, who live in Alaska, Canada, eastern Russia (Chukotka), and Greenland, formed the Inuit Circumpolar Council (ICC) [depicted as large yellow ring] in 1977. It works to “...strengthen unity between Inuit in these regions and promotes sustainable development and Inuit rights and interests at the international level.”⁸⁸ The ICC is also a Permanent Participant of the Arctic Council, which allows it to participate and consult during the Ministerial and Senior Official meetings.⁸⁹ The ICC’s current commissions, committees, and task forces include: Task Force on Trade, Language Commission, Communications Commission, and UN and Human Rights Advisory Group.⁹⁰ On the eastern side of the Arctic, the Sami people formed the Sami Council [depicted as small yellow ring on eastern side] in 1956 with the primary aim of “...the promotion of Sami rights and interests in the four states where the Sami are living, to consolidate the feeling of affinity among Sami people, to attain recognition for the Sami as a nation and to maintain economic, social, and cultural rights of legislation of the four states.”⁹¹

Both the ICC and Sami Council have led to improved status of their peoples, with enhanced rights to decide their own future. Through these organizations, their members have an opportunity to voice their issues and concerns to a worldwide audience as a unified body rather

⁸⁸ Department of Indian and Northern Affairs, “Inuit Information Sheet,” http://www.aicn-inac.gc.ca/pr/info/info114_e.html (accessed January 8, 2008).

⁸⁹ Arctic Council, “Rules of Procedure,” <http://arctic-council.org/filearchive/Arctic%20Council%20-%20rules%20of%20procedure.pdf> (accessed September 12, 2007).

⁹⁰ Inuit Circumpolar Conference, “ICC Commissions, Committees, and Task Forces,” <http://inuitcircumpolar.com/files/uploads/icc-files/ICCcommissionsetc.pdf> (accessed January 8, 2008).

⁹¹ The Sami Council, “Briefly,” <http://www.saamicouncil.net/deptid=2178> (accessed January 8, 2008).

than voicing them as a minority within a state. For example, the Sami people united across four international borders in 1980-81 to protest the harnessing of the Alta River in northern Norway.⁹² The councils have also lead to internal improvements. For example, in Norway the official policy is that "...although the Sami are Norwegian subjects, they constitute an ethnic minority and a separate people." In 1990, the Norwegian government passed the Sami Language Act, which put the Sami language on equal legal footing with Norwegian.⁹³

Indigenous groups have also improved their social systems as they settled land claims with their respective governments. As discussed in the political system, these settlements granted indigenous peoples a certain measure of autonomy to establish government and government services of their own design. According to Dr. Sandy MacDonald, an experienced Canadian northern physician and current Director of Medical Affairs for the Government of Nunavut, this allows the Inuit in Nunavut to take tackle societal challenges by taking ownership of them and creating solutions. He believes that the federal government's role should be one of "...financial and expert assistance..." rather than directing or driving changes.⁹⁴

Along with political and economic initiatives, the EU has also started initiatives that aim to improve health and social well being, particularly in the Russian Federation. One is the Partnership in Public Health and Social Well-Being (NDPHS), which is administered through the Northern Dimension as a cooperative effort between 13 governments, the European Commission, and eight intergovernmental organizations. Its mission is to "...promote sustainable development...by improving peoples' health and social well-being." Its two priorities are

⁹² Heininen and Nicol, 160.

⁹³ Elina Helander, "The Sami of Norway," http://www.reisenett.no/norway/facts/culture_sceince/sami.html (accessed January 8, 2008).

⁹⁴ Dr. Sandy MacDonald, "Building Healthy and Safe Communities – the Health Perspective," Canadian Arctic Resources Committee's *Northern Perspectives* 30, no. 1 (Winter 2006), 18.

reducing the spread of diseases and enhancing peoples' levels of social well-being.⁹⁵ The second EU initiative is the Barents Health Cooperation Programme, which is administered through BEAC. Its five areas of priority are infectious diseases, reproductive health care and child care, counteracting lifestyle-related problems, improving health services for indigenous peoples, and improving quality of medical services. The main objective is the establishment of "an electronic infrastructure between the evolving networks of general practitioners/primary health-care institutions that is compatible with general standards and built upon low-tech solutions."⁹⁶ Scientific research has strengthened the Arctic social system. The recent interest in climate change and the environment has increased the number of scientific exchanges between Arctic states. This shared knowledge increases the overall understanding of the Arctic region and influences policy development within states. For example, the U.S. government sponsored the first Arctic Climate Impact Assessment during its chairmanship of the Arctic Council (1998-2000).⁹⁷ The research was done by scientists across the globe. When published, the document influenced political debates throughout the world and at every level, from the UN to the North Slope Borough.

Anthropological research which identifies key characteristics of the indigenous groups who populate the Arctic region also bolsters the Arctic social system as those groups attempt to preserve their culture. For example, anthropologist Hugh Beach lived with the Sami reindeer

⁹⁵ NDPHS, "About NDPHS," http://www.ndphs.org/?about_ndphs (accessed January 8, 2008).

⁹⁶ Barents, "Quality of Life, Health, and Environment," <http://www.barentsinfo.org/?depid=14635> (accessed February 20, 2008).

⁹⁷ Evan T. Bloom, Deputy Director for Polar and Scientific Affairs, U.S. Department of State, "Remarks to the Conference on the United States, Climate Change, and the Arctic: Renewed American Interest in the Changing North," <http://www.state.gov/g/oes/rls/rm/2007/85350.htm> (accessed October 11, 2007).

herders for a year and identified language and the Sami's unique way of life as critical aspects of their ethnic identity.⁹⁸

Vulnerabilities of the Arctic Social System:

The Russian Federation, the Arctic state with the largest indigenous population, is also the state that has systematically displaced these peoples [depicted as a light blue star in Figure 6] and introduced ethnic majority peoples and cities into the indigenous peoples' territory. In its northern area, the Russians recognize "26 numerically small peoples" who number 180,000, or 1.5% of the total population.⁹⁹ For those who have been displaced, their social system is inconsistent with their heritage and lifestyle. In the Kola Peninsula, for example, the Sami peoples' traditional way of life, which included reindeer herding and fishing, has been degraded for decades as they have been gradually forced off fertile tundra grazing land and away from the shores of the Barents Sea into artificially created towns. "Much of the displacement was caused by a steady expansion of industry, forestry, and mining and the arrival of hundreds of thousands of workers from other parts of the Soviet Union – many of them...forced laborers in the Gulag camps."¹⁰⁰ Today there are only 1,600 Sami left in Russia; a majority is unemployed. They do not have a land settlement claim arrangement with the Russian government that would grant them a share in the oil and gas, industry, and forestry profits.¹⁰¹

⁹⁸ Hugh Beach, *A Year in Lapland: Guest of the Reindeer Herders* (Washington, DC: Smithsonian Institution Press, 1993), 5.

⁹⁹ The 26 peoples include the Sami of Norway, the Eastern Sami, Nenets, Enets, Nganasans, Khanty, Dolgans, Evenks, Evens, Yukagirs, Chuvans, Chukchi, Yupik, Aleuts, Koryaks, and Itelmens. Willy Ostreng, ed., *The Natural and Societal Challenges of the Northern Sea Route: A Reference Work* (Dordrecht: Kluwer Academic Publishers, 1999), 340.

¹⁰⁰ Jorn Madslie, "Russia's Sami Fight for Their Lives," BBC News, published December 21, 2006, <http://newsvote.bbc.co.uk/mpapps/paegtools/print/news.bbc.co.uk/2/hi/business/6171701.stm>, (accessed December 19, 2007).

¹⁰¹ Ibid.

Even for those who have not been displaced, their lifestyle and culture has changed. Until the early 1930s, the Russian reindeer herds were privately owned. The families who owned them were semi-nomadic, moving with the herd between summer and winter pastures. As the Soviets began collectivization, they forced the reindeer herders into villages with state farms, or *kolkhoz*. The herds became the property of brigades, with each brigade responsible for a certain number of reindeer and to fulfill an annual production quota. This system "...destroyed the family structure of traditional reindeer herding...Although the Soviet collectivization policy is a thing of the past, and the herd may theoretically be placed in private ownership, the greater part of the grazing land has remained bound up in a relatively rigid system between *kolkhozes*."¹⁰²

Aside from the plight of indigenous personnel, all peoples in the Russian northern cities experienced years of neglect after the end of the Cold War. In Murmansk, for example, a quarter of the population has departed since 1991. However, this trend may reverse itself as more Siberian and Arctic oil passes through its ports, as they did in the first nine months of 2006. The question is whether this will truly benefit the local population. The best-paying jobs, those of oil and gas industry, "...will be filled by experts flying in from all over the world."¹⁰³ Incoming energy giants, such as Gazprom and Lukoil, would have to register their subsidiaries locally for their taxes will be paid to Murmansk instead of Moscow. Murmansk's challenge, according to Professor Oleg Andreev of the Baltic Institute for Ecology, Politics, and Law, is "...to use the region's economic potential as a lever to improve the lot of its people, though without hampering growth."¹⁰⁴ This is a challenge throughout the entire Arctic region.

¹⁰² Willy Ostreng, ed., *The Natural and Societal Challenges of the Northern Sea Route: A Reference Work*, 348-9.

¹⁰³ Jorn Madslie, "Murmansk's Oil and Metals Bonanza," BBC News, <http://news.bbc.co.uk/1/hi/business/6103388.stm> (accessed December 19, 2007).

¹⁰⁴ Ibid.

In general, the people living in the Arctic region do not have access to the multitude of social services people living in the more populated southern regions do. For the most part, communities are small and remote, which can be a factor in the health of Arctic residents. The establishment of housing, water, waste-water, energy, and transportation systems is far more difficult in this environment, and, as such, is in some cases inadequate. Although pollution is a concern, environmental health is not the scourge of the Arctic. Instead, infectious diseases, chronic diseases, such as diabetes, cancer, heart attack, and stroke, as well as health problems such as alcoholism, drug use, and suicide are the most frequent causes of ill health and death in Arctic populations.”¹⁰⁵

One looming legacy of the Cold War that affects the eastern Arctic social system is nuclear fuel and radioactive waste that give rise to nuclear safety challenges [depicted as a red star in Figure 6]. These areas are saddled with “...spent nuclear fuel storage sites in Andreyeva Bay and Gremikha, laid-up nuclear submarines, and [a] large volume of radioactive waste at the bases and naval yards along the coast of the Kola Peninsula.”¹⁰⁶ According to The Bellona Foundation, a science based environmental organization, “...there is no other place in the world where such large amounts of spent nuclear fuel are so improperly stored as the Kola naval bases.”¹⁰⁷ As a fragile ecosystem, an accident or radioactive leakage could affect the peoples and animals of the whole Arctic region.

After four years of negotiations, the Multinational Nuclear Environmental Program in the Russian Federation (MNEPR) Framework Agreement was signed in Stockholm in May 2003.

¹⁰⁵ United States Arctic Research Commission, “Report on Goals and Objectives for Arctic Research 2005,” 23, <http://www.arctic.gov/files/USARCReportOnGoals2005.pdf> (accessed January 14, 2008).

¹⁰⁶ The Bellona Foundation, “The Arctic Nuclear Challenge,” Bellona Report, Volume 3, 2001, http://www.bellona.org/filearchive/fil_The_Arctic (accessed September 29, 2007).

¹⁰⁷ Ibid.

This agreement, between the European Commission, nine European countries, and Russia, and the United States, will allow the release of funds for clean up of radioactive waste and spent nuclear fuel that had been delayed by disagreements over taxation and liability.¹⁰⁸ Significantly, the agreements were reached during meetings of the BEAC, and funds were pledged through the Northern Dimension Environmental Partnership (NDEP), both arms of regional political outreaches to the Russian Federation. Unfortunately, these projects will take many years to complete, making the threat to the welfare of the peoples in the Arctic credible for the foreseeable future.

The educational opportunities for residents of the Arctic are lacking. Because communities are small, the financial base for the support of education is subsequently small, leaving adequate education a serious problem. This hampers the upward mobility of the Arctic youth.¹⁰⁹ If the technology is available, distance education has been used as one possible solution. Teaching native languages has been particularly difficult, especially in the eastern Arctic. According to a report of the Finnish Sami Parliament, problems in education in the Sami language are related to "...isolation, school administration, and resources...Schools at the secondary level are afflicted by a shortage of materials in the Sami language and of Sami-speaking teachers of special subjects."¹¹⁰

¹⁰⁸ Egil Tronstad and Cristina Chuen, "The Multilateral Nuclear Environmental Program in the Russian Federation," <http://cns.miis.edu/research/globpart/030604.htm>, accessed January 14, 2008.

¹⁰⁹ United States Arctic Research Commission, "Report on Goals and Objectives for Arctic Research 2005," 30, <http://www.arctic.gov/files/USARCReportOnGoals2005.pdf> (accessed January 14, 2008).

¹¹⁰ The Finnish Sami Parliament, "Land Rights, Linguistic Rights, and Cultural Autonomy for the Finnish Sami People, Indigenous Affairs, No. 33/4, July-December 1997, <http://arcticcircle.uconn.edu/SEEJ/sami1.html> (accessed January 18, 2008).

Essential Elements of the Social System:

The Arctic of the Imagination. Many people still hold the romantic view of the Arctic as a place far removed from the issues of our world in the south. It is seen as great expanse of wilderness filled with happy hunter/gatherers who live in harmony with the environment.¹¹¹ This view, far more common in the western Arctic, makes it difficult to have genuine policy debates and decisions.

Cultural Lenses Impact. Cultural lenses play a significant role in the social systems that have been developed. The Canadians and Americans have viewed the Arctic as a fascinating, remote, and underdeveloped region. The Soviets viewed the frontier as a land filled with resources that needed to be tamed.¹¹² Given those lenses, the western Arctic is still remote and underdeveloped, with social issues that arise from remoteness, while the eastern Arctic is urbanized, with social issues that arise from urbanization, displacement and loss of culture.

¹¹¹ Oran Young and Gail Oshrenko, eds., *Arctic Politics: Conflict and Cooperation in the Circumpolar North*, 14.

¹¹² Dr Alexander Arikainen, "Arctic Shipping: A Tale of Two Passages," in *Arctic Politics: Conflict and Cooperation in the Circumpolar North*, Oran Young and Gail Oshrenko, eds., (Hanover: University Press of New England, 1992), 169.

Infrastructure Summary of the System

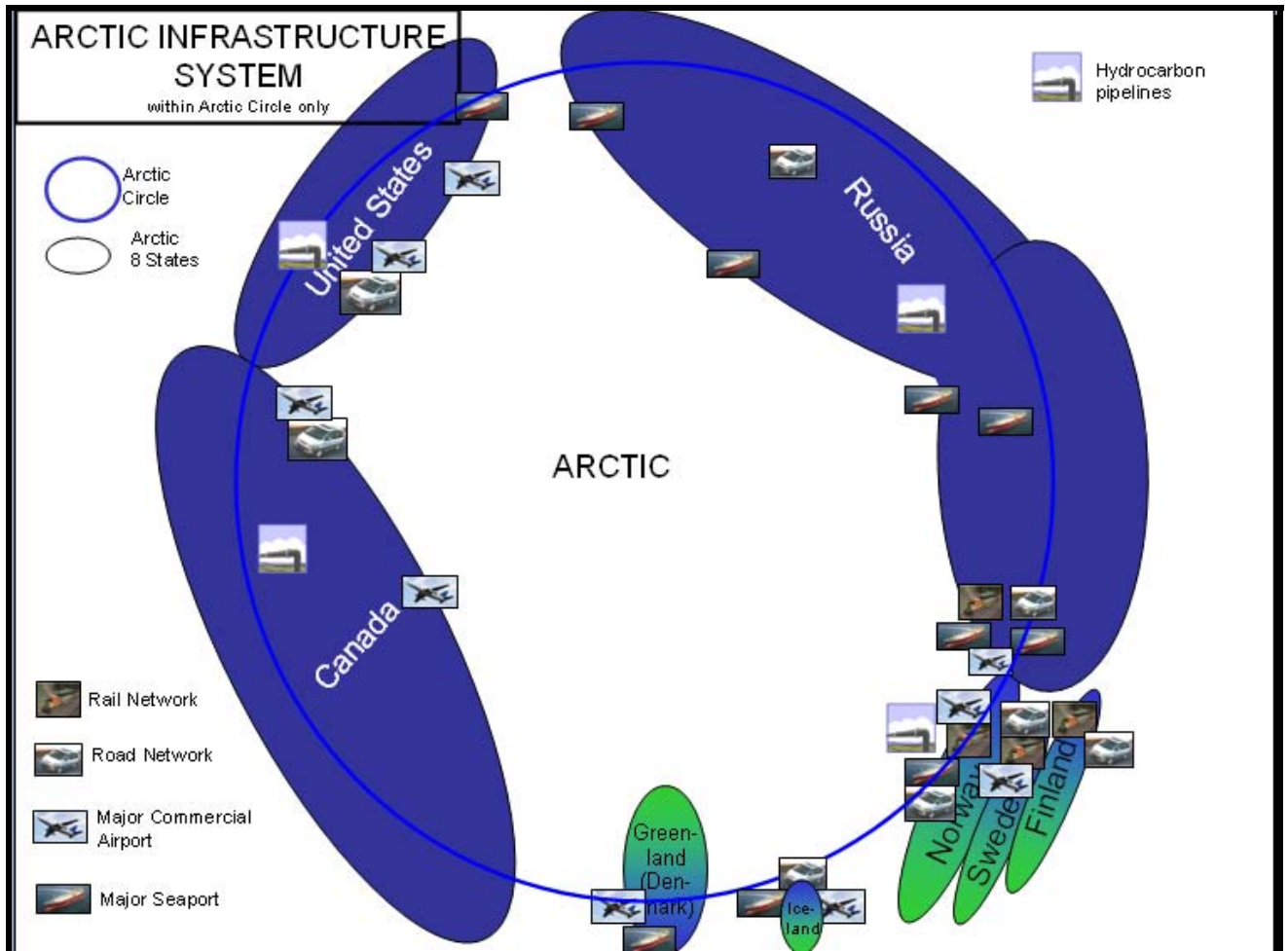


Figure 5

Key Judgments:

The Nordic Arctic states, which have higher population densities within the Arctic, have a well developed transportation infrastructure [depicted as green and blue states in Figure 7]. The Russian Arctic north is developed where it has higher population densities, and is less developed otherwise. The western Arctic states, which have low population densities within the Arctic, have less developed transportation infrastructure, typically established for resource-extraction only.

Strengths of the Arctic Infrastructure System:

The Russian Arctic has a relatively developed infrastructure for shipping between major ports at Murmansk or Archangelsk and minor resource-producing cities on the Siberian rivers. As discussed in the economic system, the Soviets saw the development of the Northern Sea Route as a national challenge, a way to “master the Arctic,” gain the resources of the northern hinterland, and establish “...the ports of northern part of European Russia for the export of timber, grain, fish, meat, fur, animal fats, and other riches.”¹¹³ Between 1929 and 1960, the Soviets opened ports at Pevek, Khatanga, and Zelenyy Mys; improved ports at Mys Shmidta, Amderma, and Kharasavey; and opened mines for various minerals at Norilsk, Khatanga, Yakutia, and Magadan Kolyma.¹¹⁴ The Russian Federation currently has 16 ports within its Arctic region, the greatest number for any Arctic state.¹¹⁵

Iceland, northern Norway, Sweden, and Finland are the most densely populated regions in the Arctic. Whether the denser population creates infrastructure, or infrastructure binds the population to the area is unknown, but “...their communication networks, transportation infrastructures (including extensive road systems), commercial and personal services, and public services are remarkably advanced.”¹¹⁶

As stated above and seen in Figure 7, the Nordic states’ transportation infrastructure is well developed. In Norway, for example, the highway extends to major cities in the Arctic Circle, including Tromso (population 65,000) and Hammerfest (population 10,000). The major

¹¹³ Willy Ostreng, ed., *The Natural and Societal Challenges of the Northern Sea Route: A Reference Work*, 35.

¹¹⁴ Ibid, 37.

¹¹⁵ World Port Source, “Ports in Russia,” <http://www.worldportsource.com/ports/RUS.php> (accessed February 7, 2008).

¹¹⁶ Gerard Duhaime, “Economic Systems,” *Arctic Human Development Report* (Akuyeri, Iceland: Stefansson Arctic Institute, 2002), 76.

crossroad is at the city of Narvik, with highway E6 running north-south, and highway E10 running east-west into Sweden. One hundred thousand tons of cargo is trucked via highway E10 across the Swedish border annually.¹¹⁷ The southwest to northeast rail system extends to Bodo (population 45,000), which is just inside the Arctic Circle.¹¹⁸ There is also a rail link between Sweden and the city of Narvik, which ultimately connects Norway to the rest of Europe.¹¹⁹ Containerized rail express, called the Arctic Rail Express (ARE), either travels to Oslo (ARE I) seven days a week in 27 hours, or to Padborg in Denmark (ARE II) in 32 hours. The Norwegians are currently developing ARE III, which will link Narvik to Russia and China.¹²⁰ The city of Narvik also has a commercial airport, with six flights to Oslo daily.¹²¹ Norway has 10 ports within the Arctic region; the Port of Narvik is its largest dry-bulk transit port in a deep-water quay with no depth restrictions. It can accommodate vessels of more than 300,000 Deadweight Ton (DWT).¹²² The other Nordic states all have similar transportation infrastructure.

Norway is also an example of the Nordic states' ability to develop infrastructure to tie their northern regions' economies into their national economies, and ultimately, the world economy. Since oil was discovered on its continental shelf in 1971, Norway has developed 6,600 kilometers of offshore pipeline, the most extensive offshore pipeline network in the world. It is called Gassled, and it serves all gas producers on the continental shelf. Gas can flow directly to

¹¹⁷ Port of Narvik, "Road," <http://www.narvikhavn.no/cgi-bin/narvikhavn/imaker?id=139&visdybde=3&aktiv=139> (accessed January 25, 2008).

¹¹⁸ Norway Country Review, 2008. Business Source Complete, p. 8, <http://www.countrywatch.com>, accessed January 25, 2007.

¹¹⁹ Port of Narvik, "Rail," <http://www.narvikhavn.no/cgi-bin/narvikhavn/imaker?id=137&visdybde=3&aktiv=137> (accessed January 25, 2008).

¹²⁰ Ibid.

¹²¹ Avinor, "Flight tables for Harstad/Narvik Airport, Evenes," <http://www.avinor.no/en/airport/harstad/timetables?airportcode=OL&type=J> (accessed January 25, 2008).

¹²² Port of Narvik, "Sea," <http://www.narvikhavn.no/cgi-bin/narvikhavn/imaker?id=45&visdybde=3&aktiv=45> (accessed January 25, 2008).

receiving terminals in Germany, France, Belgium, and the United Kingdom, or it can flow to onshore process plants to be exported by ship as liquefied natural gas (LNG).¹²³

Just as Norway has developed infrastructure for the movement of hydrocarbons, so have Russia, the United States, and Canada, although these states are faced with the challenge of developing infrastructure to transport hydrocarbons greater distances. In addition to its shipping capabilities, among its 30,000 miles of crude oil pipeline network Russia has one pipeline that stretches approximately 1,400 miles from Murmansk to Germany.¹²⁴ Alaska has the Trans-Alaska pipeline, which carries crude oil from Prudhoe Bay 800 miles south to the port of Valdez on the Prince William Sound.¹²⁵ The Canadian and United States oil pipeline networks are well integrated and increasingly interconnected. Canada is a key supplier of crude oil to the United States, with seven pipelines running from five of its territories south to various locations within the United States. It also "...ships major quantities of its natural gas output to the United States through several pipeline connections."¹²⁶

Of the two Arctic state islands, Iceland has the more developed infrastructure. It started to build roads in the 1900s, and greatly increased construction in the 1980s, although there are still many gravel roads. However, most of its cities are connected by the national road system,

¹²³ Norwegian Petroleum Directorate, "The Upstream Pipeline Network for Gas," http://www.npd.no/English/Emner/Ressursforvaltning/Promotering/whynorway_gas_network.htm?print=true (accessed January 25, 2008).

¹²⁴ Jorn Madslien, "Arctic Exploration Creates New Alliances," BBC News, <http://news.bbc.co.uk/1/hi/business/4356014.stm> (accessed September 29, 2007). Russian pipeline totals (rounded) follow: 30,000 miles for crude petroleum; 10,000 miles for refined petroleum products; 87,000 miles for natural gas. From "Russia – Infrastructure, Power, and Communications," <http://nationsencyclopedia.com/economies/Europe/Russia-Infrastructure-Power-and-Communications.html> (accessed February 5, 2008).

¹²⁵ Frank E. Baker, "Archive: Thirty Years Ago...Trans Alaska Pipeline Construction Got Underway," British Petroleum Corporation, http://www.bp.com/liveassets/bp_internet/globalbp/STAGING/global_assets/downloads/B/BPM_04two_P62-65_archive.pdf (accessed December 12, 2007).

¹²⁶ North American Energy Working Group, "North America Energy Picture," June 2002, <http://www.eia.doe.gov/emeu/northamerica/enginfr1.htm> (accessed January 25, 2008).

which consists of almost 8,000 miles of roads, of which 25 percent are paved. Iceland does not have a rail system, but it has 12 airports with paved runways, which conduct daily internal flights, as well as international flights to Europe and North America. Due to its heavy dependence on fishing revenues, Iceland has nine developed seaports.¹²⁷

Vulnerabilities of the Arctic Infrastructure System:

The Russian rail and road system is well developed around Moscow, but otherwise it is lacking. The main rail network was built east-west with the northernmost line (Baikal-Amur [BAM] Trans Siberian) outside of the Arctic Circle. Within the Arctic Circle, two lines run to the Kola Peninsula, the October Railways (St Petersburg to Murmansk) and the Northern Railway (Moscow to Archangelsk, and then further east to Vorkuta). Although these lines are critical due to the sparse and poorly maintained road network, "...the standard of the railways is poor after long periods of neglected maintenance...extensive renovations and upgrading is required."¹²⁸ Throughout the state, commercial transportation relies heavily on rail. Although it handles 83 percent of all freight in Russia (excluding oil by pipeline), and accounts for 3.6 percent of Russia's GDP¹²⁹, it is "...insufficiently integrated into world transport systems."¹³⁰

¹²⁷ "Iceland – Infrastructure, Power, and Communications," <http://www.nationsencyclopedia.com/economies/Europe/Iceland-Infrastructure-Power-and-Communications.html> (accessed February 5, 2008).

¹²⁸ Barents Regional Council, "Barents Link – A Railway Network for Heavy Traffic," August 2004, <http://barents.ulapland.fi/photos/archive/BarentsLink.pdf> (accessed February 7, 2008).

¹²⁹ Russian Railways, "The Company," http://www.eng.rzd.ru/wps/portal/rzdeng?STRUCTURE_ID=4 (accessed February 7, 2008).

¹³⁰ The Russian railway system includes a total of 150,000 kilometers (93,210 miles) of broad gauge rail, making it one of the most extensive railway systems in the world. However, of this total only 87,000 kilometers (54,061 miles) is in "common carrier" service. The remaining 63,000 kilometers (39,148 miles) serve specific industries or are dedicated railways lines and are not available for common carrier use. Following decades of insufficient investment in maintenance and capital improvement, the railway infrastructure has badly deteriorated. About 30 percent of freight cars, 40 percent of passenger cars, and nearly half the locomotives are of such poor quality that they should be replaced immediately. From

The Russian trucking industry is only minimally developed, and roads are not designed to carry heavy and long-distance truck traffic.¹³¹ Of the total of almost 600,000 miles in the highway system, only 210,000 miles are paved.¹³² Due to the poor condition of the roads and the underdeveloped trucking system, a critical element of Russian infrastructure is its inland waterways and Northern Sea Route (NSR). In the inland waterways, the Russian River Fleet uses 63,000 miles of navigable routes. In order to transport the resources from these inland waterways along the NSR, the Russian Merchant Marine maintains over 700 ocean-going vessels.¹³³

The western Arctic is much more underdeveloped than the Nordic states. In Alaska, there are two regional airports within the Arctic region, one at Barrow and the other at Prudhoe Bay. However, the main commercial airport is in Anchorage in the southern part of the state. The Alaskan Highway, built in 1942, and opened to the public in 1948, traverses Alaska north-south, connecting its major cities (Anchorage and Fairbanks) to the northern territory, but it is typically closed most of the winter.¹³⁴ There are no long distance east-west road networks. Even south of the Arctic region travel is limited. In fact, one cannot drive to Juneau, the capital of Alaska; travelers have to arrive by airplane or ferry.¹³⁵ Additionally, the Alaskan Railroad only goes as far north as Fairbanks, 125 miles south of the Arctic Circle. It is mainly a tourist

“Russia – Infrastructure, Power, and Communications,”
<http://nationsencyclopedia.com/economies/Europe/Russia-Infrastructure-Power-and-Communications.html>
(accessed February 5, 2008).

¹³¹ Ibid.

¹³² Ibid.

¹³³ Ibid. Although large, the Russian fleet is twice as old as the global average.

¹³⁴ Public Broadcasting Station, “American Experience, Building the Alaska Highway,”
<http://www.pbs.org/wgbh/amex/alaska/timeline/timeline2.html> (accessed January 25, 2008).

¹³⁵ Rear Admiral Arthur Brooks, Commander, 17th Coast Guard District, interviewed by author, Juneau, Alaska, December 14, 2007.

industry, with only 7.6 million tons of freight moved in 2006.¹³⁶ The United States has only one port within the Arctic region, the Port of Kotzebue, which is a small harbor-type port 33 miles north of the Arctic Circle.¹³⁷

The Canadian northern region is similarly underdeveloped. Its major airports are all well south of the Arctic region; the two northernmost major airports are in Edmonton and Saskatoon.¹³⁸ The road network in northern Canada is very limited. For example, in the Yukon Territory, one could only travel the entire north-south distance by linking a paved highway (Klondike Highway) with a gravel highway (Dempster Highway).¹³⁹ However, in the Northwest Territory, paved highway ends in Yellowknife, the winter highway (Mackenzie Highway) ends in Colville Lake, and there is no road linking Colville Lake to Paulatuk, which is on the Amudsen Gulf.¹⁴⁰ The rail is similarly limited in the north, extending to a northernmost point just south of Yellowknife, which is south of the Arctic Circle.¹⁴¹ Canada has 99 seaports, but not one within the Arctic Circle. The closest is the Port of Churchill, a port with four deep-sea berths located in Hudson Bay.¹⁴² In comparison to Murmansk, its sister city on the Russian Arctic, the population of Churchill is 1,100 versus 325,000. However, it is in the process of being developed by an

¹³⁶ The Alaskan Railroad, "Freight Services," <http://www.akrr.com/arcc7.html> (accessed February 7, 2008).

¹³⁷ World Port Source, "Ports of the United States," <http://www.worldportsource.com/ports/USA.php> (accessed February 7, 2008).

¹³⁸ Canada Airport Map, <http://www.canadamapxl.com/airport-map.html> (accessed February 7, 2008).

¹³⁹ Yukon Territory Government, Department of Highways and Public Works, "Yukon Highways," http://www.hpw.gov.yk.ca/pdf/driving_yukon_highways_2007.pdf (accessed February 7, 2008).

¹⁴⁰ Northwest Territories, Department of Transportation, "Northwest Territories Highway System," <http://www.dot.gov.nt.ca/live/documents/documentManagerUpload/NWThighwaysystemMap.pdf> (accessed February 8, 2008).

¹⁴¹ "Canada Railway Map," <http://www.canadamapxl.com/rail-map.html> (accessed February 7, 2008).

American-owned company called OmniTrax, which linked the Port of Churchill with its own Hudson Bay Railway. The shipping season is still a short four months, but in October 2007 the port "...received its first inbound shipment in seven years and the first ever from the Russian Federation, a shipment of fertilizer imported by the Farmers of America. This shipment...is said to be the beginning of an Arctic bridge between the two countries."¹⁴³

Greenland is even more limited in infrastructure. There are no roads or railways linking the towns, so all transport takes place by plane or ship. The local population uses dogsleds and snowmobiles for shorter trips.¹⁴⁴ Like Iceland, Greenland relies heavily on its fishing industry, so it does have developed seaports. There are 13 total, all in the southern region, and mainly on the west coast.¹⁴⁵

Like transportation infrastructure, there is a constant requirement for upgrade and development of hydrocarbon infrastructure.¹⁴⁶ In some regions, this has proved difficult to fund. Russia, for example, is second only to the United States for length of oil pipelines, with a combined length of mainline pipeline exceeding 144,000 miles, not including pipelines on oil fields, which adds another 186,000 miles.¹⁴⁷ Environmental groups have accused Russian construction companies of using substandard pipeline material that does not even last the short-

¹⁴² World Port Source, "Ports of Canada," <http://www.worldportsource.com/ports/CAN.php> (accessed February 7, 2008).

¹⁴³ OmniTrax, "Port Services," <http://www.omnitrax.com/portservice.aspx> (accessed February 7, 2008).

¹⁴⁴ Greenland.com, "Local transport," http://www.greenland.com/content/english/tourist/travel_facts/local_transport (accessed February 5, 2008).

¹⁴⁵ World Port Source, "Ports in Greenland," <http://www.worldportsource.com/ports/GRL.php> (accessed February 7, 2008).

¹⁴⁶ North American Energy Working Group, "North America Energy Picture," June 2002, <http://www.eia.doe.gov/emeu/northamerica/enginfr1.htm> (accessed January 25, 2008).

¹⁴⁷ Rashid Allimov, "Russian Pipelines Burst: Oil Rivers Flow," Bellona, http://www.bellona.org/english_import_area/energy/30532?printerfriendly=Yes (accessed February 2, 2008).

term lifetime of four- to five years.¹⁴⁸ Greenpeace reports that oil spills occur regularly along Russian pipelines. They estimate that "...spills of 1,000 tons of oil occur every 1-2 years on average, while smaller accidents involving several hundred tons occur every 2-3 months."¹⁴⁹

The developed hydrocarbon industries in Norway and the United States (Alaska) do not have as many issues with oil leaks and spills, but they will be forced to develop new infrastructure as oil production drops in their developed areas. Oil reserves in both areas are dwindling. The Norwegian government assumes there are fifty years of oil left in its developed North Sea area. It is now looking towards the Barents Sea, which is a more challenging environment, has underdeveloped infrastructure, and coincides with very important fishing areas.¹⁵⁰ Additionally, its boundaries are in dispute with the Russian Federation.¹⁵¹

The U.S. is facing similar issues with its oil supply from Prudhoe Bay. With production declining in from a peak of over 2 million barrels a day (MMbbl/d) in 1988 to Prudhoe Bay to 1.1 MMbbl/d in 2000, focus has shifted on-shore to controversial areas, such as the Arctic National Wildlife Refuge (ANWR), and off-shore in the Beaufort Sea.¹⁵² Currently, environmental groups have blocked exploratory drilling in both of these areas. The Senate voted to defeat a

¹⁴⁸ Ibid.

¹⁴⁹ CBS News, "Conflicting Reports on Russia Oil Leak," <http://www.cbsnews.com/stories/2006/07/31/world/printable1847760.shtml> (accessed February 6, 2008).

¹⁵⁰ Lars Bevangen, "Norway Prepares for Dry North Sea," BBC News, <http://news.bbc.co.uk/1/hi/business/3622129.stm> (accessed December 19, 2007).

¹⁵¹ The Russian-Norwegian dispute in the Barents Sea involves "...132,000 square kilometers of continental shelf...At stake are fishery rights and potential commercial hydrocarbon and other mineral deposits on the disputed area of the continental shelf." Both states agreed to a "gray zone" to regulate fishing activities, but no such agreement exists for hydrocarbons. From Kurt M. Shusterich, "International Jurisdictional Issues in the Arctic Ocean," *U.S. Arctic Interests The 1980s and 1990s* (New York: Springer-Verlag, 1986), 258.

¹⁵² Production figures from Energy Information Administration, Office of Oil and Gas, U.S. Department of Energy, "Future Oil Production for the Alaska North Slope," May 2001, vii, <http://tonto.eia.doe.gov/FTP/ROOT/petroleum/0627.htm> (accessed October 5, 2007).

drilling proposal in the ANWR in 2002, in part due to their constituents' messages and emails.¹⁵³

In April 2007, Pacific Environment sued the Minerals Management Service, which controls off shore drilling leases, "...asserting that it had not taken adequate account of the risks any oil spill would pose to whales and other species."¹⁵⁴ In July a three-judge panel of the U.S. Court of Appeals for the Ninth Circuit ordered Shell not to drill while the case was under review, which "...effectively ended this year's drilling efforts."¹⁵⁵ Even if Norway and the U.S. are able to overcome these issues, new infrastructure will have to be developed to link the newly developed regions to the established systems, and they will surely meet environmental groups' resistance as they attempt to do so.

Essential Elements of the Infrastructure System:

Resource Extraction Driven. Infrastructure development and maintenance is based on support of resource extraction. In the Nordic Arctic, this has lead to well-developed infrastructure. In Russia and the western Arctic, this has lead to north-south systems with pockets of development as needed to support resource extraction.

Underdevelopment. Except in the Nordic states, infrastructure across the Arctic is underdeveloped. Road systems are sparse, unpaved, and not maintained. Rail systems are limited. Airports are regional, with the commercial hub to the south. Seaports and inland waterways are developed in accordance with the states' reliance on resource exports.

¹⁵³ Mark Swindle, "The Changing Face of Online Environmental Activism: New Tools and Their Effect on Environmental Policy," <http://shockandawe.us/globalization/paper.doc> (accessed January 30, 2008).

¹⁵⁴ Jad Mouawad, "Tension at the Edge of Alaska," *New York Times*, December 4, 2007, C10.

¹⁵⁵ Ibid.

Questionable Future Development. As states extract all resources possible from non-renewable resource areas, they have to shift to new areas. This shift requires development of new infrastructure, which may be blocked by environmental or indigenous groups.

Information Summary of the System

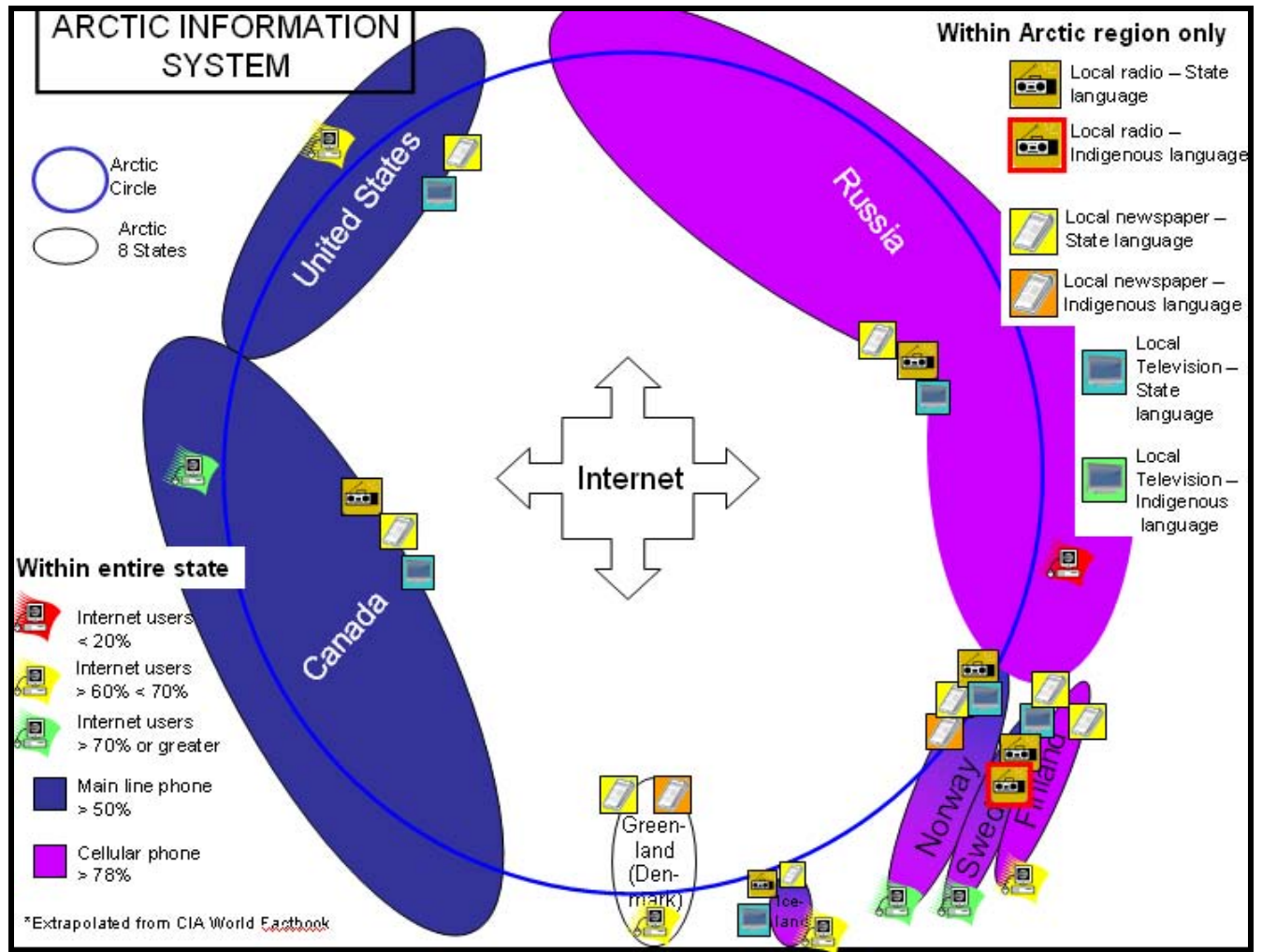


Figure 8

Key Judgments:

Although some states show strong information systems, and even the weaker states are adequate, there is no real Arctic information system. Communications are designed to run north-south, not within the Arctic region itself.

Strengths of the Arctic Information System:

As depicted in Figure 8, the information system of each Arctic state as a whole is quite capable. All states have national broadcast, Internet, magazine, newspaper, and press agency news media capabilities.¹⁵⁶ In all but one state, a lack of telephone main line capacity is replaced by cellular phone capacity; Greenland still relies on telephone main line.¹⁵⁷ The Internet is a force on the whole system, with only Russia having less than 20 percent of its population using the Internet [depicted as a red Internet symbol in Figure 8]; all of the other states were above 60 percent [depicted as yellow and green Internet symbols].¹⁵⁸ Within the Arctic region itself, at least one local media outlet - television, radio, or newspaper - is available in every state.¹⁵⁹

As in the infrastructure system, the Nordic states of Norway and Sweden are at the top of the Arctic information system. For example, in the year 2000 Sweden had "...the highest number of phone lines (combined fixed and mobile) per capita, as well as the highest percentage of Internet users in the world."¹⁶⁰ In 2006, as part of its Objective 1 "Norra Norland" Program to make the north "a high-tech region in a high-tech country", the government of Sweden funded the establishment of Internet broadband network in Norbotten. Over 300 villages and 93 percent of

¹⁵⁶ Extrapolated from each states' page on ABYZ News Links, "Index" <http://www.abyznewslinks.com/>, accessed February 5, 2008.

¹⁵⁷ Extrapolated from states' information in the *CIA World Factbook*.

¹⁵⁸ Ibid.

¹⁵⁹ Extrapolated from each states' page on ABYZ News Links, "Index" <http://www.abyznewslinks.com/> (accessed February 5, 2008).

¹⁶⁰ Nationsencyclopedia.com, "Sweden – Infrastructure, Power, and Communications," <http://www.nationsencyclopedia.com/economies/Europe/Sweden-Infrastructure-Power-and-Communications.html> (accessed February 5, 2008).

the region now have access to broadband. Additionally, all the schools in Norbotten are connected.¹⁶¹

As far as its other information outlets are concerned, Sweden has 13 national broadcast news media outlets, nine of which are radio, in languages reflecting immigration, indigenous groups, and neighboring countries – Arabic, German, English, Swedish, Russian, Albanian, Serbian, and Finnish. The other four national outlets are television, all using the Swedish language. It has 17 national Internet news media sources, with Swedish as the main language and English as the other. It also has 11 foreign Internet news media sources, 10 in English and one in French. Sweden has nine national news papers, eight in Swedish and one in Finnish. Within its regions in the Arctic Circle, there are two local television and two local radio stations that broadcast in Swedish, one local radio station that broadcasts in Sami and Swedish, and six local newspapers that are printed in Swedish.¹⁶²

Iceland also has a solid information system, with cellular service replacing lacking capabilities in its “adequate” main line telephone service. Its international telephone systems are handled by three satellite earth stations, with one of the three shared with the Scandinavian states. Although almost all of the state and local newspapers are in Icelandic, Internet broadcast are predominantly in English and less than half the television programming is in Icelandic, with most programs coming from the U.S. and Great Britain and shown with subtitles. Internet use at home is between 60 and 70 percent, and 82 percent of Icelanders have Internet access at home, school,

¹⁶¹ The MatureMarket.com, “Sweden: Broadband for the Far North,” October 2, 2007, <http://www.thematuremarket.com/SeniorStrategic/dossier.php?numtxt=8332&idrb=5> (accessed February 7, 2008).

¹⁶² ABYZ News Links, “Sweden Newspapers and News Media Guide,” <http://www.abyznewslinks.com/swede.htm> (accessed February 7, 2008).

or work, reflecting the states' "...every growing information-technology industry, with the export of software rapidly increasing."¹⁶³

Vulnerabilities of the Arctic Information System:

In contrast with Sweden's northern regions, the Russian northern republics, oblasts, and autonomous okrugs have limited information outlets. Of the six available for study, three (Sakha Republic, Republic of Karelia, and Arkhangel Oblast) had only local newspapers in the Russian language, and no local television or radio outlets. The other three – Murmansk Oblast, Yamalo Nenets Autonomous Okrug, and Krasnoyarsk Krai – have mainly newspaper outlets, all in Russian, and a few television and Internet outlets, again in Russian.¹⁶⁴

A U.S. State Department overview of the Chukotka Autonomous Region conducted in 1998 revealed how isolated the Russian Arctic region is. Chukotka is the easternmost region in Russia, just across the Bering Strait from Alaska. In 1998, it was just establishing a unified communications system for the entire region, which would ultimately allow people in its cities to call people in its other cities directly using a city code. At that time, only 20 to 25 percent of the inhabitants could make long distance calls "...due to the lack of point-to-point communication channels and low capacity of the long-distance telephone station."¹⁶⁵ The Division of Communications was working on establishing cellular phone capacity "...using low orbit satellites via the central station though the demand [was] relatively low because of low

¹⁶³ Nationsencyclopedia.com, "Iceland – Infrastructure, Power, and Communications," <http://www.nationsencyclopedia.com/economies/Europe/Iceland-Infrastructure-Power-and-Communications.html> (accessed February 5, 2008).

¹⁶⁴ Nationsencyclopedia.com, "Russia – Infrastructure, Power, and Communications," <http://www.nationsencyclopedia.com/economies/Europe/Russia-Infrastructure-Power-and-Communications.html> (accessed February 5, 2008).

¹⁶⁵ Maria Breiter, Commercial Assistant, U.S. and Foreign Commercial Service, U.S. Embassy (Moscow), "Russia's Chukotka Autonomous Region Overview," October 1998, <http://www.users.qwest.net/~kryopak/ChokotkaHomePage.htm> (accessed February 7, 2008).

purchasing power of the population.”¹⁶⁶ The Russian Federation has made significant progress in the last ten years in building telecommunications infrastructure, but has done so mainly in the urban areas. The cross-country digital trunk lines run west-east from Saint Petersburg to Khabarovsk, well south of the Arctic region.¹⁶⁷

The western Arctic regions are similarly challenged. Nuiqsut, a community of 433 residents in Alaska’s North Slope Borough, serves as an example. Although it does have a post office, there is no FM radio or daily newspaper within 100 miles.¹⁶⁸ There are two local television stations, both owned by the State of Alaska, and one to three reported broadband providers.¹⁶⁹

Greenland also displays information system challenges, as it is the only Arctic state with less than 50 percent main line phones and less than 78 percent cellular phone communications. Perhaps as a reflection of its nearness to Canada and the U.S., Internet news media is entirely in English. However, its newspapers, radio, and television reflect typical north-south ties, as they are in Danish. One national and one local newspaper are published in Kalaallisut, the indigenous language.¹⁷⁰

Overall, the Arctic information system is structured to facilitate north-south communication. With the exception of Internet news media, media outlets are largely state

¹⁶⁶ Ibid.

¹⁶⁷ Nationsencyclopedia.com, “Russia – Infrastructure, Power, and Communications,” <http://www.nationsencyclopedia.com/economies/Europe/Russia-Infrastructure-Power-and-Communications.html> (accessed February 5, 2008).

¹⁶⁸ Federal Communications Commission, “FM and TV Query Results,” <http://www.fcc.gov/fcc-bin/fmg?state=&call=&arn=&serv=FE&city=&freq=0.0&fre2=107.9&facid=&class=dk&list=2&dist=50&dlat=70&mlat=13&slat=3&NS=N&dlon=150&150&mton=58&slon=35&EW=W> (accessed February 6, 2008).

¹⁶⁹ Center for Public Integrity, “Area Summary,” <http://www.openairwaves.org/telecom/search/default.asp?zip=99789> (accessed February 6, 2008).

¹⁷⁰ ABYZ News Links, “Greenland Newspapers and News Media Guide,” <http://www.abyznewslinks.com/green.htm> (accessed February 7, 2008).

centered using the state language. Only the Scandinavian states broadcast in each others' languages. Inter-Arctic communication is not facilitated with this current system.

Essential Elements of the Information System:

Sparse Population Disconnect. Remote, sparsely populated areas throughout the Arctic are not connected to their entire state information system. Typically, these areas have access to only one or two outlets, such as radio and newspapers, and Internet access is limited.

Reliance on Cellular Phone Capabilities. In the Arctic region, areas that do not have main line telephone connections have overcome this issue by turning to cellular phones. In Russia, less than 50 percent of the population has a main line telephone, but more than 78 percent has a cellular phone.

Scandinavian Strength. Norway, Sweden, Finland, and, to an extent, Iceland, have very strong information systems. Three out of the four states have main line phone connection over 50 percent and cellular connection over 78 percent. They also have strong media outlets, including radio and newspapers in indigenous languages.

Key Nodes and Linkages in the Arctic System

After viewing each part of the Arctic system separately, it is now possible to identify the key nodes and linkages in the system. Key nodes are critical people and things. Key linkages are critical relationships between the nodes.

Key Nodes.

Ice. Changes in the ice in the Arctic region are affecting all aspects of it. In areas where it is melting more quickly, Arctic states have already begun to extract resources in areas that were previously considered economically not viable. Further melting could lead to increased shipping through the region using the Northern Sea Route and the Northwest Passage, which would greatly change the dynamic in the Arctic, and expose it to more risk.

The Russian Federation. Russia has long considered itself an Arctic nation, and it established resource extraction infrastructure long before many of the other states. However, as seen in numerous individual system figures, it is also the most isolated Arctic state.

United States of America. The U.S. has not shown much interest in the Arctic, burying its policy director in the State Department bureaucracy, sending lower ranking government officials to the Arctic Council meetings, and allowing its Navy to essentially abandon its waters. As the world's superpower, it needs to be engaged; leadership is required to shape this region.

Canada. Canada is a strong advocate of diplomatic approaches to problems. It is also the originator of the Arctic Council. It has strong economic ties to the U.S., and a recent history of security collaboration.

EU. The EU has numerous programs designed to keep the Russian Federation from becoming isolated. It is also the main importer of Russian oil and natural gas, and is an importer of many of the other eastern Arctic states' resources, such as oil and fish.

Multi-national Oil and Gas Corporations. These corporations typically team with a local, regional, or state-owned gas or oil company to develop and extract oil and gas. They introduce positive energy into the system because they have a vested interest in the security and stability of their partner states, and they follow relatively strict environmental standards. However, they can also introduce negative energy because they are very competitive among each other, which can increase tension among states.

Supra-national Non-governmental Organizations (NGOs). These organizations have harnessed the communications capability of the Internet to influence almost all aspects of the Arctic, including marine life, oil and gas drilling, and the lives of indigenous personnel.

Indigenous Groups. Indigenous groups are a rising player in the Arctic, having only recently gained strength through land and cash settlements with their states. They are now participants in their own governments, and in the Arctic Council.

World Trade Organization (WTO). All states are subject to certain economic rules in order to be accepted into the WTO. The Russian Federation has not yet met the requirements, mainly due to concerns about the lack of privatization of sectors of its economy, intellectual property rights, and restriction in foreign investment in financial services.

Trade. The Arctic states' economies are significantly tied to each others. Specifically, the U.S. and Canada have open trade through NAFTA. The rest of the Arctic states are tied into the EU market.

Internet. The Internet is the only form of communication that is not established as a north-south node. This gives the people of the Arctic region access to information beyond their states' information sources. It also provides an outlet for them communicate to a world audience.

Linkages.

Arctic Council (AC). The Arctic Council is the one body that links all of the Arctic states into one group. It has been the site of cooperation on many issues, particularly those concerned with the environment. However, it is limited by its charter, which does not allow it to address security issues.

Barents Euro-Arctic Council (BEAC) and Regional (BEAR) Council. These organizations, at both the state and regional level, are significant links between the Nordic states (and ultimately the EU) and the Russian Federation. They are essential to keep it from becoming isolated.

Nordic Council. The Nordic Council, established in 1962, is an important example of cooperation between the states of Norway, Sweden, Finland, Denmark (Greenland), and Iceland. Agreements range from labor to fisheries to culture to language.

EU's Northern Dimension. This program could provide a key link between the EU and the Russian Federation, although its effect to this point has been limited due to modest funding and internal EU disagreement over priorities.

Indigenous Groups Councils. These councils have created international actors out of groups that were typically marginalized within their own state. They have seen success within the Arctic Council, and when they team with NGOs.

UNCLOS. Within the next five years, all coastal Arctic states but the U.S. will have to have their claims for additional water rights beyond the standard 200 nautical miles submitted to the Law of the Sea Convention. Its rulings will determine who has access to the vast resources within the seven seas surrounding the Arctic Ocean, and portions of the Arctic Ocean itself.

System Potential

The Arctic contains vast natural resources, and exploitation of those resources is of significant scale. The production created in the formal Arctic economy in 2002 was over \$230,000 million, which is almost 80 percent of the entire economy of Saudi Arabia.¹⁷¹ The Arctic states recognize the current and future value of their Arctic regions as providers of minerals and fossil fuels, even though they are sparsely populated. For some states, notably the Russian Federation, Canada, and Norway, the exploitation of minerals and hydrocarbons in their Arctic region is central to their national economy. For the rest of the states in the world, the stable supply of mineral and hydrocarbons is essential to the functioning of their economies. As demand continues to grow and the ice in the Arctic continues to melt, the exploitation of untapped resources by stable states will become even more valuable, especially when instability in the Middle East persists. The melting ice could also lead more vessels to choose the northern shipping routes, either the Northern Sea Route or the Northwest Passage, as “shipping shortcuts,” cutting “existing oceanic transit time by days, saving shipping companies thousands of miles in travel.”¹⁷² For these reasons, the Arctic will reemerge as a strategic location in the near future, with some states viewing it as a strategic reserve (the U.S.), other states viewing it as fundamental to their economy (the Russian Federation, Canada, and Norway for hydrocarbons and minerals, Iceland and Greenland for fish), and many other states viewing it as a transit area for the movement of goods and resources.

Due to the value of their Arctic regions to the Arctic states, a shock to the system would affect them all, more significantly affecting the states that rely on it as a central part of their national economy. Fortunately, as discussed in the individual system analysis, the system

¹⁷¹ Gerard Duhaime, “Economic Systems,” in *Arctic Human Development Report*, 2004, 70.

exhibits buffering in the political, military, economic, and information systems, which will allow it to absorb inputs up to a certain level without sending it into distress.

At this time, the system shows potential to travel in one of two directions. It could become an area of conflict as the quest for resources drives states to clash over disputed territory. Or, it could become an area of cooperation, with states securing their national interests within the scope of international law while sharing information on common topics, such as the environment and sustainable development. Currently, the system is at a fork in the road between its two potential directions. The next ten years will be critical in determining which direction the Arctic system will take as states begin to submit their territory claims to UNCLOS, the ice continues to melt, resource extraction technology continues to improve, more ships begin transit, and the demand for energy increases.

¹⁷² Scott G. Borgerson, "Arctic Meltdown," *Foreign Affairs* 87, no. 2 (March/April 2008), 69.

Chapter 2

With the understanding gained from examining the Arctic region as a system and ascertaining the key nodes and linkages, as well as system potential, the next question is: what does that mean for the United States? This chapter will answer that question, after first discussing what its objective should be.

Today, the Arctic region is one of opportunity. Although the ice is melting quicker than scientists predicted, it is not melting so fast that there is no time to shape the conditions in the region. However, the window to do so opened a few years ago, and it will close within the next five years as the coastal Arctic states stake their claims through the UNCLOS. Thus far, the U.S. has not taken an active role in the Arctic region, but it must do so to achieve what this researcher believes should be its objective: to ensure U.S. interests are met in the Arctic region while maintaining cooperation among the Arctic states, with due consideration given to the environment and the indigenous personnel inhabiting it when decisions are made.

Once an objective is defined, one can consider how to influence the Arctic system to achieve it. As first stated in May 1982 in President Ronald Reagan's National Security Decision Directive (NSDD) 32, "Our national security requires development and integration of a set of strategies, including diplomatic, informational, economic/political, and military components."¹⁷³ The set of strategies he refers to have become known as the instruments of national power. According to Army Field Manual 1, *The Army*, "...the United States wields strength and

¹⁷³ National Security Decision Directive Number 32, U.S. National Security Strategy, <http://www.fas.org/irp/offdocs/nsdd/23-1618t.gif> (accessed January 29, 2008).

influence through the instruments of national power...to shape the international environment.”¹⁷⁴

The combined strength of these instruments will be needed to shape the Arctic region. This chapter will discuss each of the instruments, using an analysis that identifies strengths, weaknesses, opportunities, and threats (SWOT).

Diplomacy

Strengths.

Relationships. As seen in the political system analysis, the United States has significant alliances worldwide, with a leadership position within these arrangements. Although recent U.S. administration actions, such as the Iraq War, have strained relationships with some of these partner nations, the system is buffered well enough to withstand this type of strain. Within the Arctic region, the U.S. has an established diplomatic relationship with all seven other Arctic states.

Weaknesses.

Vision, Policy Approach and Framework. The U.S. does not have a published vision of what it would like the Arctic region to look like in twenty-five years. It is not included in any of the recent national security strategy documents, nor is it mentioned specifically in the 2007 National Maritime Strategy. The recent territorial claims and the increase in economic development could lead to the Arctic becoming an area of conflict, if left unchecked. On the other hand, the regional cooperation seen in Arctic Council programs and initiatives could lead the Arctic to become an

¹⁷⁴ U.S. Army Field Manual 1, *The Army*, June 14, 2005, 2-1.

area of accord. If the U.S. develops a vision of the future Arctic, it will be better able to shape the region in the coming years to meet that vision.

The six objectives the U.S. claims to be an Arctic policy are not a policy at all.¹⁷⁵ Some are even at odds with each other, leaving a policy maker without an over-arching vision of what the U.S. wants the Arctic to look like to choose among the objectives without guidance. A list of objectives is not a policy; it is the first of three parts of a policy, with the second and third parts being “...(2) an understanding of the situation in which goals are to be pursued; and (3) a set of routines for goal-attainment in the situation as understood.”¹⁷⁶ Without these other parts, decisions are made ad hoc and incrementally, without a holistic view.

The U.S. continues to approach the Arctic region with a state-centered focus, which limits its method of dealing with problems and issues in the region. It does not “...consider cooperation with Canada or the EU’s Northern Dimension or indeed the Arctic Council beyond a narrow set of initiatives based on environment and health.”¹⁷⁷ Currently, “...its concept of northern dimension remains an issue-based approach in which traditional security and strategic concerns dominate.” Without a geographical framework, the U.S. will struggle to develop a northern dimension to its foreign policy. And, without recognition of the trend towards regional

¹⁷⁵ The U.S. Arctic policy is given as six principle objectives: protecting the Arctic environment and conserving its living resources, promoting environmentally sustainable natural resource management and economic development in the region, meeting post-Cold War national security and defense needs, strengthening institutions for cooperation among the eight Arctic nations, involving indigenous people of the Arctic in decisions that affect them, and enhancing scientific monitoring and research on local, regional, and global environmental issues. Taken from U.S. Department of State, Under Secretary for Democracy and Global Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, “U.S. Arctic Policy,” <http://www.state.gov/g/oes/ocns/arc> (accessed October 11, 2007).

¹⁷⁶ Franklyn Griffiths, “Environment in the U.S. Security Debate: The Case of the Missing Arctic Waters,” *Environmental Change and Security Report* (1997): 19, <http://www.wilsoncenter.org/topics/pubs/ACF14AA.pdf>, accessed January 30, 2008.

¹⁷⁷ Heininen and Nicol, 153.

and transnational actors, it will struggle to achieve its objectives because it has not included the region's current power base.¹⁷⁸

Defined U.S. Interests. Although the U.S. government has six objectives for the Arctic, it has not outlined what its Arctic interests are, and what it is willing to defend.¹⁷⁹ The Russians have recently made it clear, with the planting of the flag at the bottom of the North Pole and the revival of strategic bomber patrols, what they intend to claim, and possibly defend in the region. They have also submitted such a claim to the UN Commission on the Limits of the Continental Shelf once, in 2001, although it was returned without action with a request for additional substantiating data.¹⁸⁰ The U.S. has not even engaged in a debate about its Arctic interests, and has delayed considering what it is willing to defend. This delay has occurred for three reasons. First, there are unsettled territorial claims in the Arctic between the U.S. and the Russian Federation and the U.S. and Canada.¹⁸¹ Second, the U.S. and Canada have an on-going dispute over the Northwest Passage.¹⁸² Finally, the U.S. has not ratified UNCLOS.¹⁸³

¹⁷⁸ Ibid.

¹⁷⁹ Rear Admiral Brooks, Commander, 17th Coast Guard District, interview by author, Juneau, Alaska, December 14, 2007.

¹⁸⁰ Written testimony of John D. Negroponte, Deputy Secretary, U.S. Department of State, before the Senate Foreign Relations Committee on September 27, 2007, related to Accession to the 1982 Law of the Sea Convention and Ratification of the 1994 Agreement Amending Part XI of the Law of the Sea Convention, <http://www.senate.gov/~foreign/testimony/2007> (accessed September 29, 2007).

¹⁸¹ The U.S.-Russian dispute is over how to draw the boundary line in the Bering Sea based on the 1867 Convention. It is significant because petroleum and other mineral deposits may cross the boundary line between the two states. The U.S.-Canadian dispute is over the Beaufort Sea and how to draw the boundary line from the 141st meridian of west longitude established in 1825. Again, there is potential of offshore hydrocarbon resources in the area of dispute. Kurt M. Shusterich, "International Jurisdictional Issues in the Arctic Ocean," in *U.S. Arctic Interests in the 1980s and 1990s* (New York: Springer-Verlag, 1986), 248.

¹⁸² The Canadians claim jurisdiction over the Northwest Passage as "historic waters," which is not an internationally recognized category for a claim. The U.S. claims that the Northwest Passage is an "international strait" as defined under Article 37 of the 1982 UNCLOS. In 1988, the U.S. and Canada entered into an Agreement on Arctic Cooperation, which left the main dispute over sovereignty unresolved. In 1994 UNCLOS added Article 234, a special provision for ice-covered waters, which gave Canada the authority to enact its Arctic Waters Pollution Prevention Act for the "...prevention, reduction, and control of maritime pollution from transiting vessels." This gave Canada certain authority over the Northwest

Thus far, it has not hurt the U.S. to delay decisions on territorial claims, passage disputes, and UNCLOS because the Arctic was very much a secondary concern. Now that it is emerging as an area of interest, the U.S. government will have to make these decisions, or will lose the opportunity to set the conditions for cooperation in the Arctic region. In order to do this, it must settle its territorial claims with the Russian Federation and Canada, either by bilateral treaty or by submitting the claim to the International Court of Justice, International Tribunal for the Law of the Sea, or UN special arbitration. Second, it must either settle its dispute over the Northwest Passage with the Canadians or decide to leave the status undetermined while establishing an agreement on the security of the passage. (This is critical because the Canadians have continually claimed sovereignty over the Northwest Passage, but historically their government has not established the appropriate infrastructure to do so, nor has it funded the equipment, such as surveillance aircraft or ice breakers, which would allow it to protect that sovereignty).¹⁸⁴ Finally, the U.S. Senate must ratify UNCLOS. In October 2007, the Senate Foreign Relations Committee voted 17-4 to support the convention, which is also supported by President George W. Bush. It is now awaiting a vote in the Senate itself, where it would need a two-thirds vote for approval.¹⁸⁵

Passage, but not sovereignty. Douglas M. Johnston, "The Northwest Passage Revisited," *Ocean Development and International Law* 33 (2002), 147-149.

¹⁸³ UNCLOS entered into force in 1994, codifying many laws that were negotiated through various treaties and practices, including the 200 nautical mile exclusive economic zone, the 12 nautical mile territorial seas, right of passage through international straits, etc. One hundred and fifty-five nations have signed the treaty. The U.S. has not, due to an issue with submitting to a deep seabed mining authority. As a non-party, the U.S. does not have access to the Commission on the Limits of the Continental Shelf, either as a reviewer of others requests, or to extend its own shelf beyond the 200nm in accordance with the treaty. Elisabeth Mann Borgese, *Ocean Governance and the United Nations*, 3-6,13-18,21-22,31-33.

¹⁸⁴ Lieutenant-Commander Guy Killaby, "Great Game in a Cold Climate: Canada's Arctic Sovereignty in Question," *Canadian Military Journal*, Winter 2005-2006, <http://www.journal.forces.gc.ca/engraph/vol6/no4/p> (accessed October 5, 2007).

¹⁸⁵ Kevin Drawbaugh, "U.S. Senate Panel Backs Law of Sea Treaty," Reuters, October 31, 2007, <http://www.reuters.com/articlePrint?articleId=USN31335585> (accessed January 28, 2008).

Policy Coordination. Although the U.S. has a current Arctic objectives, it does not have a lead agency or a group responsible for reviewing and coordinating the implementation of the policy and international activities and programs in the Arctic. In fact, the Reagan Administration was the last administration to designate an agency to do so. In NDSS 90, United States Arctic Policy, signed April 14, 1983, President Reagan declared: “It is clear that the United States has unique and critical interests in the Arctic region related directly to national defense, resource and energy development, scientific inquiry, and environmental protection.”¹⁸⁶ He gave the responsibility for reviewing and coordinating implementation of his policy to the Interagency Arctic Policy Group (IAPG), which reported directly to the National Security Council.¹⁸⁷

The interests that President Reagan outlined 25 years ago have not changed, other than becoming more critical. However, there is no agency or group responsible for coordinating policy across the government agencies. The State Department has buried the Arctic under three layers of its own bureaucracy. It is in the Oceans Division, which is under the Bureau of Oceans and International Environmental and Scientific Affairs, which is under the Under Secretary for Democracy and Global Affairs. Also significant is that it falls under environmental and scientific affairs. Currently, the only government agency doing any coordination across agencies is the U.S. Arctic Research Commission, which is responsible for establishing policy, priorities, and goals for “...basic and applied scientific research with respect to the Arctic.”¹⁸⁸ It also promotes research, coordinates with the National Science Foundation, and gives guidance to the Interagency Arctic Research Policy Committee (IARPC).¹⁸⁹

¹⁸⁶ National Security Decision Directive 90, United States Arctic Policy, <http://www.fas.org/irp/offdocs/nsdd/23-2075t.gif> (accessed January 17, 2008).

¹⁸⁷ Ibid.

¹⁸⁸ U.S. Arctic Research Commission, “Arctic Research and Policy Act of 1984, Amended 1990,” <http://www.arctic.gov> (accessed October 11, 2007).

¹⁸⁹ Ibid.

While scientific research is an important foundation to Arctic policy and continues to be an aspect of it, it is certainly not the only aspect, and it should not be the element that coordinates policy. It is critical that the U.S. government immediately designates an agency or group, or even revives the IAPG, to coordinate and implement the six objectives of its current policy across the following agencies, who all have play a role: Department of Interior, including Minerals Management Service, National Park Service, Fish and Wildlife Service, and the U.S. Geological Survey; Department of State; Department of Commerce, National Oceanic and Atmospheric Administration; Department of Homeland Security, U.S. Coast Guard; Environmental Protection Agency; Department of Energy; Center for Disease Control; and National Institute of Health (Arctic Heart Study). This lead agency or group should report to the National Security Council, as the IAPG did during the Reagan Administration, to ensure that the group's focus remains national interests and national security.

Opportunities.

Leadership. The United States has an opportunity to take a leadership role within the Arctic states, ensuring the region is shaped into an area of accord rather than conflict. Thus far, the U.S. has only played a minor role, while Canada, on the one hand, has devised cooperative organizations such as the Arctic Council, and the Russian Federation, on the other hand, has asserted sovereignty in territory it cannot legally claim (yet). This back and forth between cooperation and conflict will continue until the U.S. asserts leadership, engages the other Arctic states, and develops agreements. This is not only essential for keeping the area from conflict over territory and/or resources, but also for considering sustainable development, environmental security, and the quality of life of the people living in the region.

Russian Engagement. The U.S. has the opportunity to engage The Russian Federation in the development of the Arctic region as an area of cooperation. It should be considered a true partner in this process since it has the largest Arctic territory, the largest Arctic population, the highest

Arctic GDP, and the most developed Arctic infrastructure. It also proved, during the Cold War, that it was willing to set aside environmental concerns and indigenous peoples' rights to ensure its national security.¹⁹⁰ With climate change affecting the region as a whole, the U.S. wants to engage the Russians in all major decisions to ensure the eastern Arctic does not suffer again.

Threats.

Russian Isolation. Analysis of the Arctic system showed the Russian Federation somewhat isolated politically, militarily, and economically, while at the same time the most developed and populated northern country. Even as it uses various antics to reassert itself in international politics, it is essential that the U.S. and EU ignore the showmanship and continue to engage it through numerous avenues, especially the diplomatic one.

Loss of Potential Territory, Resources, and Influence. If the U.S. Senate does not ratify the UNCLOS, the U.S. government will not be able to make a claim to coastal waters beyond the 200 nautical mile exclusive economic zone, as it may be authorized to do in accordance with the treaty. This could mean the loss of exclusive rights to resources off of the north coast of Alaska. It could also mean that the U.S. has less influence over the Arctic, as other Arctic coastal states gain up to the 350 nautical miles they are allowed, leaving only two small portions of the Arctic considered high seas.¹⁹¹

Territorial and Resource Conflict. As a worst case scenario, the Arctic region could deteriorate into one of conflict among Arctic states based on territorial claims and the resources they contain. As discussed in the political system analysis, there are numerous disputes that have been left

¹⁹⁰ Suggested by the Bellona report of nuclear waste and environmental conditions in the Kola Peninsula, and by the articles describing the treatment of the Sami people of the same region.

¹⁹¹ George B. Newton, "UNCLOS and Bathymetry in the Arctic Ocean," presentation to the Impact of an Ice-Diminished Arctic on Naval and Maritime Operations, Washington, DC, July 10, 2007, <http://www.orbit.nesdis.noaa.gov/star/documents> (accessed October 10, 2007).

unresolved because they were not imperative. Now that the conditions are changing, some of these disputes will need to be resolved or conflict, armed or otherwise, could occur between states.¹⁹² As demonstrated by the Cold War, conflict in this region relegates concerns about the environment, sustainable development, and the quality of life for the northern inhabitants to a minor role, which could be devastating to the current and future Arctic region as a whole.

¹⁹² As previously discussed, there are avenues to resolve these claims – either the International Court of Justice or through multi- or bi-lateral treaty.

Information

Strengths.

Numerous Avenues. The U.S. possesses numerous avenues to broadcast its message to both the Arctic region and a world-wide audience. In addition to media outlets, such as television, newspapers, and the Internet, the U.S. can also spread its message of Arctic cooperation during key international and state-level meetings, such as UN Framework Convention on Climate Change (UNFCCC) meetings, G7/G8 conferences, the World Economic Forum, etc. It also can send a clear message to the Arctic states through the Arctic Council.

Scientific Research. U.S. scientists are conducting and coordinating some of the most definitive research on climate change, and this research is being used worldwide in policy debates and formulation. For example, the International Arctic Research Center (IARC), a cooperative research institute founded by the U.S. and Japanese governments in 1999, is located in Fairbanks, Alaska. Twenty international groups and scientists from 60 countries conduct research under its leadership. Significantly, the Arctic Climate Impact Assessment (ACIA) directorate moved its office to IARC in 2000; the ACIA is used by UNFCCC to construct frameworks, such as the Kyoto Protocols, to reduce global warming.¹⁹³ Due to the impact of this type of information, the U.S. should continue to be the leader in providing accurate scientific research in the Arctic region.

Weaknesses.

Credibility. Some critics believe the U.S. is now operating in a “credibility deficit of global proportions.” In order to change world opinion, it has gone into “...overdrive to get the message

¹⁹³ International Arctic Research Center, “IARC Overview,” <http://www.iarc.uaf.edu/about/index.php> (accessed January 30, 2008) and United Nations Framework

out about U.S. values, policies, and positions...[with] an information-centered approach [that] presumes either a lack of information or an abundance of misinformation.”¹⁹⁴ Despite this attempt, critics believe that Bush Administration decisions, such as the decision to invade Iraq, leave many with a perception of U.S. arrogance and impatience, which greatly affects its credibility. And, without credibility, “...no amount of information holds persuasive weight, and U.S. soft power can't attract and influence others.”¹⁹⁵ Suggestions for tackling this problem include “...a comprehensive, innovative, and strategic approach that entails developing more creative relationship-building strategies, matching policy decisions with viable communication options, and coordinating traditional and public diplomacy initiatives.”¹⁹⁶

Strategic Communications. Although the Bush Administration once addressed the need to develop an information strategy and coordinate dissemination to all perspective audiences by establishing an Office of Global Communications in 2002, it has since been disestablished. Without it, there is a recognized vacuum for the coordination of communication across the entire government. Instead, there is “...little evidence of cooperation, coordination, or even appreciation for the impact of strategic communication. Thus, there is need for a permanent mechanism to coordinate as well as implement and monitor all interagency information efforts.”¹⁹⁷ With every publication of a national security strategy a nested national communications strategy should follow.

Convention on Climate Change, “Essential Background,”
http://unfccc.int/essential_background/items/2877.php (accessed January 30, 2008).

¹⁹⁴ R.S. Zarhana, “The U.S. Credibility Deficit,” *Foreign Policy in Focus*, December 13, 2006,
<http://www.fpif.org/fpiftext/3796> (accessed January 30, 2008).

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

¹⁹⁷ Jeffrey B. Jones, “Strategic Communications: A Mandate for the United States,” *Joint Force Quarterly* 39 (October 2005), 110.

Unconnected north. As discussed in the Arctic Information System, the Arctic portion of Alaska is not well integrated into the communications infrastructure of the rest of the United States, or even the rest of Alaska. Just as Sweden established a program to develop a high-tech north, the U.S., in conjunction with the State of Alaska, should ensure connectivity within its north. This will not only help with information, but with social conditions, including education and medicine (through telemedicine). It would also provide a backbone for any future efforts to develop infrastructure within the Arctic region.

Opportunities.

Inter-Arctic Connectivity. The U.S. has the opportunity to lead an effort within the Arctic, most logically through the Arctic Council, to develop connectivity between Arctic regions. As discussed in the Arctic Information System, the media connections in the Arctic are typically north-south within the state itself. The use of the Internet by indigenous groups – to inform, to organize, and to affect decisions made by governments - demonstrates their potential impact when they have accessible media outlets. Additionally, connectivity among the Arctic would assist in the preservation of language and culture.

Message through Action. The U.S. has the opportunity to send its message by its actions. For example, it could send a signal to the rest of the Arctic states that it is taking the Arctic seriously by sending a senior administration official to attend Arctic Council and other Arctic-related meetings. It could also develop a lead Arctic agency or group, as discussed under Diplomacy, and have it answer to the National Security Council, which sends a clear message of priority.

International Non-governmental Organizations. In pursuit of their agenda of protecting the northern region and its inhabitants, environment-oriented NGOs have raised the level of awareness of the Arctic region both in the Arctic states and throughout the world. Although their influence may or may not lead to sound policy decisions, they have shown remarkable ability to

harness the Internet to inform personnel at the grass roots level and ultimately affect policy.

These groups have found a way to educate (however one-sidedly) the population about the Arctic region, raising awareness and spurring political action.

Threats.

Rising Expectations. When advances in communications and information are coupled with rising levels of education, awareness increases and expectations rise. If there is a large gap between those rising expectations and present conditions, it can lead to frustration and resentment.¹⁹⁸ In the Arctic regions, this frustration and resentment can manifest itself in different ways. While other factors, such as economic conditions and government policy changes, also weigh into migration, it is noteworthy that since Internet access was offered commercially in 1992, the U.S., Greenland, Norway, Sweden, Finland, and the Russian Federation all have experienced migration out-flow in their northern regions.¹⁹⁹

¹⁹⁸ “Revolution of Rising Expectations,” India Vision 2020, DevelopedNation.org, <http://www.developednation.org/government/indiavision/revolutionofrisingexpectations.htm> (accessed February 12, 2008).

¹⁹⁹ Migration numbers provided by Dmitry Bogoyavenskly and Andy Siggner, “Arctic Demography,” *Arctic Human Development Report* (Akureyi, Iceland: Stefansson Arctic Institute, 2004), 39. Hypothesis that this is related to available information and Internet access is the author’s.

Military

Strengths.

Force Projection. In general, the U.S. military is the most capable military in the world of deploying in a short period of time to respond to potential crises.²⁰⁰ However, the Army is almost completely reliant on the Navy and Air Force to project forces, an issue that the Department of Defense has addressed by maintaining equipment sets throughout the world for quick access in case of short-fused operations. Although all but one of those sets are currently being used in support of Operation Iraqi Freedom, under normal conditions the U.S. military is viewed as the force most capable of projecting itself worldwide.

Within the Arctic region, the U.S. Marines keep a brigade's worth of equipment in Trondelag, Norway. Then Secretary of Defense Donald Rumsfeld updated this agreement in June 2005. It commits the U.S. to assist Norway in its defense, allows combined training between U.S. and Norwegian ground forces, and keeps equipment available in Europe for a NATO mission.²⁰¹

Ballistic Missile Protection. In 2006, Lieutenant General Henry A. Obering III, Director, Missile Defense Agency, announced that the U.S. was deploying its initial layered integrated ballistic missile defense system. The initial capability of the Ballistic Missile Defense System (BMDS) "...provides some defense against short- and medium-range ballistic missiles using Patriot Advanced Capability-3 missiles and Aegis Ballistic Missile Defense Standard Missile-3."²⁰² It

²⁰⁰ Lieutenant Colonel Kenneth E. Hickins, "Transforming Strategic Mobility," <http://www.almc.army.mil/ALOG/issues/MayJun03/MS856.htm>, accessed January 30, 2008.

²⁰¹ Kathleen T. Rhem, American Forces Press Service, "Rumsfeld Signs Pre-positioning Agreement with Norway," <http://www.defenselink.mil/utility/printitem.aspx?print> (accessed November 7, 2007).

²⁰² Missile Defense Agency, "Global Ballistic Missile Defense, A Layered Integrated Defense," BMDS Booklet, Fourth Edition, page 1, <http://www.mda.mil/mdalink/pdf/bmdsbook.pdf>, accessed January 17, 2008.

also “...enables engagement of intermediate-range and intercontinental ballistic missiles in the midcourse phase using Ground-Based Interceptors.”²⁰³ In 2007-2008, MDA plans to expand the initial capability by adding networked, forward-deployed sensors, as well as sea and land interceptors.²⁰⁴

Northern Warning System. Through the North American Aerospace Defense Command, commonly known as NORAD, the U.S. and Canadian command structure provides air and aerospace defense of the continent.”²⁰⁵ Currently, there are 18 sites in Alaska and 36 in Canada.²⁰⁶ The two states’ May 2006 agreement renewal expanded the mandate to include a maritime warning mission.²⁰⁷ However, a December 2007 interview with the Lieutenant Colonel John Clayton, Commander, 611th Air Support Squadron, revealed that RADAR sites are not the best systems for maritime warning, as the range fan is generally aimed too high to detect penetration by sea.²⁰⁸ However, when working in conjunction with satellite, which alerts the command to aircraft taking off from air bases, the RADAR system is adequate for detection of aircraft approaching North America.²⁰⁹

Research. The military maintains cold weather research capability through a number of organizations. The Army operates the Cold Regions Test Center in Alaska, a developmental test

²⁰³ Ibid.

²⁰⁴ Ibid.

²⁰⁵ Ann Denholm Crosby, “A Middle Power Military in Alliance: Canada and NORAD,” *Journal of Peace Research* 34, no. 1 (February 1997), 37.

²⁰⁶ Pan Arctic Inuit Logistics Corporation (PAIL), “North Warning System,” <http://www.pail.ca/nws.html> (accessed October 5, 2007).

²⁰⁷ Sharon Hobson and Caitlin Harrington, “NORAD Mission Expands to Maritime Warning,” *Jane’s Defence Weekly* 43, no. 21 (May 24, 2006): 8.

²⁰⁸ Lieutenant Colonel John Clayton, Commander, 611th Air Support Squadron, interview by author, Elmendorf Air Force Base, Alaska, December 13, 2007.

²⁰⁹ The satellite is a Canadian satellite, the RADARSAT-2, which is a next generation Synthetic Aperture Radar (SAR) that provides 3m high resolution imaging. (<http://www.radarsat2.info/about/mission.asp>).

center that tests equipment prior to fielding and throughout its lifecycle as improvements are made. It is the only center in the Department of Defense that tests in a natural cold environment, and its ranges are capable of testing weapon systems from 5.56mm to MLRS.²¹⁰ Their tests have found some common problems that effect capacity to operate, such as “.... battery power is greatly diminished, fluids thicken or freeze, optics ice over from exhaled moisture, exhaust gases from missile motors freeze and obscure pilot/operator visibility, cabling becomes brittle and breaks, and wheeled vehicles struggle to maneuver.”²¹¹ The Army Corps of Engineers operates the Cold Regions Research and Engineering Laboratory (CRREL) in New Hampshire. Its mission is to solve problems “...by advancing and applying science and engineering to complex environments, materials, and processes in all seasons and climates, with unique core competencies related to the Earth’s cold regions.”²¹² Two of their current research projects are Stryker Vehicle Terrain Impact Tests and Helicopter Preflight Deicing.²¹³ Another research center concerned with cold environments is the Army’s Soldier Systems Center (SSC) located in Natick, Massachusetts. The SSC is responsible for “...researching, developing, fielding, and managing food, clothing, shelters, airdrop systems, and Soldier support items.” Recent tests concerning cold weather include a new cold weather ration, a cold weather meal specifically for long-range patrol, and cold weather clothing.²¹⁴ If future military operations take place in the Arctic, this research will prove critical to the survivability of the force.

²¹⁰ LTC Vince Malone, Commander, Cold Regions Test Center, Fort Greely, Alaska, e-mail message to author, January 31, 2008.

²¹¹ Ibid.

²¹² U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, “About Us,” <http://www.crrel.usace.army.mil/crrel/mission.html> (accessed January 14, 2008).

²¹³ Ibid.

²¹⁴ U.S. Army, Soldier Systems Center (Natick), “About the U.S. Army Soldier Systems Center,” <http://www.natick.army.mil/about/index.htm> (accessed February 12, 2008).

Weaknesses.

Overall.

Combatant Command Confusion. The Arctic falls into three combatant commanders' area of operations – PACOM, NORTHCOM, and EUCOM.²¹⁵ Not one of the three has claimed ultimate responsibility for the Arctic, so joint exercises are not being conducted in accordance with doctrine, and headquarters elements are not adequately training for possible missions.²¹⁶

Ballistic Missile Defense System. Although it protects North America from certain types of ballistic missiles, critics argue that it has made the world less safe for two reasons. First, the U.S. had to formally withdraw from the 1972 Anti-Ballistic Missile (ABM) Treaty in 2002 in order to field the system, undermining years of negotiation and cooperation in arms control agreements with the Russian Federation and its predecessor, the USSR. Second, it could create an Asian nuclear arms race as China expands its nuclear forces to counter this capability.²¹⁷ Both have the potential to bring back the Arctic militarization that existed during the Cold War.

Military Footprint Restructuring. Although the Navy identified the need for forward operating locations for logistics in its 2001 Ice-Free Arctic Symposium, the U.S. government still decided to close the Naval Air Station Keflavik in Iceland on September 30, 2006. The U.S. had had a military presence there since 1941, and maintains a formal defense agreement, signed in 1951, to

²¹⁵ U.S. Military Commands, "Unified Command Plan," Center for Defense Information, <http://www.cdi.org/issues/USForces/commands.html> (accessed January 30, 2008).

²¹⁶ According to Rear Admiral Arthur Brooks, Commander, 17th Coast Guard District, in the Alaska Shield Exercise of May 2007, the Navy refused to subordinate itself to LTG Frazier, Commander of JTF-Alaska.

²¹⁷ "Ballistic Missile Defense," James Martin Center for Nonproliferation Studies at the Monterey Institute of International Studies, March 2007, http://www.nti.org/f_wmd411/f2d.html (accessed January 30, 2008).

defend Iceland, which does not have a military.²¹⁸ The government must reconsider this base closing due to the potential for increased activity and competition in the Arctic; Iceland is in a key location between western and eastern Arctic, and would serve well as a support base for military units monitoring operations in the Arctic or ensuring open sea lines of communication. *JTF-Alaska*. NORTHCOM's lead agent for the Arctic is JTF-Alaska, which is stationed at Elmendorf Air Force base in Anchorage, Alaska. Due to the current focus on the Middle East, it does not receive a high priority for manning. For example, although it is a joint staff, it is not authorized a school-trained Tier 1 or Tier 2 level planner.

Army. Although a Stryker brigade is stationed in Alaska, it is a FORSCOM unit, and is thereby subject to deployments to other climates, such as the Middle East. Undoubtedly, some cold weather operations capability has been lost as the brigade trained for its most recent mission in Iraq and then conducted operations there for 16 months.²¹⁹

Army cold weather doctrine desperately needs updating. The *Basic Cold Weather Manual* (Field Manual [FM] 31-70) was last updated in December 1968, and *Northern Operations* (FM 31-71) was updated in June 1971. Additionally, the Army has not conducted an assessment of its preparedness to operate in Arctic conditions, although it does maintain the Northern Warfare Training Center (NWTC) in Alaska. The NWTC downsized in 2000 as it moved from Fort Greely to Fort Wainwright, forcing it to change from a unit focus to an individual, train-the-trainer focus. Although this and the increase of the number of Soldiers stationed in Alaska has increased throughput, the Training Administrator/Course Manager at

²¹⁸ Navy News, "Last U.S. Servicemembers to Leave Iceland Sept. 30," http://www.news.navy.mil/search/print.asp?story_id=25809&VIRIN=39001&imagetype, accessed October 11, 2007.

²¹⁹ Donna Miles, Armed Forces Press Service, "Stryker Brigade Ceremony Focuses on Accomplishments, Sacrifices," <http://www.defenselink.mil/news/NewsArticle.aspx?ID=2402> (accessed March 13, 2008).

NWTC believes that “...operational level experience of the U.S. Army in an arctic/sub-arctic environment is virtually non-existent.”²²⁰

The Army does not have an element that is intimately familiar with the Arctic terrain. The Canadians have their Rangers, which is comprised of indigenous personnel who live in their northern territories and can conduct patrolling and surveillance as needed. Often described as the military’s eyes and ears in remote areas, their “...official role since 1947 has been ‘to provide a military presence in those sparsely settled northern, coastal, and isolated areas of Canada which cannot conveniently or economically be provided by other components of the Canadian Forces.’”²²¹ The U.S. Army once had a program like this to defend Alaska during World War II. This “Tundra Army,” which was part of the Alaskan Territorial Guard, was manned by Eskimo Scouts, who defended the entire 5,200 miles of Alaskan coastline from Japanese attack.²²²

Navy. The Navy has assessed its preparedness to operate in Arctic or cold weather conditions twice in the last seven years. It held workshops in 2001 and again in 2007. The final report from the 2001 workshop concluded that there are many knowledge gaps, including the extent of operational limitations and the amount of new capabilities that will be required to conduct and support operations. It also identified known needs, such as icebreaker capability, ice-strengthened hulls, command and control capability, logistical support bases, expanded synthetic

²²⁰ Mr. Peter Smith, Training Manager/Course Administrator, Northern Warfare Training Center, e-mail message to author, February 12, 2008.

²²¹ P. Whitney Lackenbauer, “The Canadian Rangers: A ‘Postmodern’ Militia That Works,” *Canadian Military Journal* 6, no. 4 (Winter 2005-2006), 49.

²²² After the Alaskan National Guard was federalized and sent to defend the Washington coastline, the territorial governor of Alaska requested a defense force. In response, the Army created the Alaskan Territorial Guard, which was manned by Alaska Scouts, ages 16 to 80, who swore an oath to “bear true faith and allegiance to the United States and Territory of Alaska.” They did not receive compensation, but were issued an Enfield rifle and ammunition. The organization was disbanded in 1947. In 2000, the Senate passed a bill granting Alaska Scouts veterans status. Muktuk Marston, *Men of the Tundra: Eskimos at War* (New York: October House Inc., 1969) and “Bob Goodman for ATG,” <http://www.goodmanforatg.com> (accessed April 16, 2008).

aperture radar (SAR) coverage, cold weather weapons testing and evaluation, and cold weather training.²²³ The 2007 final report has not yet been released, but is expected to come to similar conclusions.

Despite these symposiums and the identified needs, the Navy recently eliminated its High Latitude Program, a formal program for polar research. With the elimination of this program, the Navy now commits about \$1 million annually to Arctic research, down from a high of \$25 million annually in the 1990s. In addition to the lost future knowledge, the Navy will also lose the expertise of the Navy-supported researchers who were part of the program.²²⁴ This is a further cut in its Arctic research program; the Navy once had an Arctic research laboratory in Point Barrow, Alaska. It closed in 1981.²²⁵

Coast Guard. The U.S. Coast Guard has been as active as possible in embracing a future role in the Arctic. In addition to the flights the 17th District began conducting in 2007, Coast Guard Commandant Thad Allen announced that they will test some of their ships and aircraft in the Arctic region in 2008 to evaluate their suitability for cold weather operations and for operations in previously inaccessible waters.²²⁶ Despite the Coast Guards attempt at preparedness, it is hampered by three main issues. First, it only has three polar ice breakers to conduct its missions, and two of the three are at the end of their service lives. Second, the National Science Foundation

²²³ Office of Naval Research, Naval Ice Center, Oceanographer of the Navy, and the Arctic Research Commission, "Naval Operations in an Ice-Free Arctic Symposium," 17-18 April 2001, <http://www.natic.noaa.gov/icefree/finalarcticreport> (accessed October 10, 2007).

²²⁴ Lieutenant Magda Hanna, "In the Dark and Out in the Cold," *Proceedings Magazine*, June 2006, vol 132, http://www.usni.org/magazines/proceedings/archive/story.asp?print=Y&STORY_ID=56, accessed January 7, 2008.

²²⁵ M.C. Shelesnyak, Office of Naval Research, "The History of the Arctic Research Laboratory," <http://pubs.aina.ucalgary.ca/arctic/Arctic1-2-97.pdf>, accessed January 17, 2008.

²²⁶ Jon Rosamond, "U.S. Coast Guard Plans to Test Assets in Arctic," *Jane's Defence Weekly* 45, no. 13 (March 26, 2008), 8.

runs the budget for the icebreakers. Third, the U.S. Coast Guard is a small service, normally under the Department of Homeland Security, except during wartime.²²⁷

Air Force. In a white paper called “The Nation’s Guardians: America’s 21st Century Air Force” released in December 2007, Air Force Chief of Staff General Michael Moseley acknowledged that the current inventory of aircraft is the oldest in history, battered by continuous combat since it began patrolling the no-fly zones in Iraq in 1990. This, he stated, is “taking a toll on our people and rapidly aging equipment.”²²⁸ Continued operations at such a high tempo could limit the Air Force’s ability to support operations in multiple regions. Additionally, the continued focus on operations the Middle East could reduce the force’s ability to operate in other environments.

Marines. Although the Marines have equipment forward deployed in Norway, called the Norway Air-Landed Marine Expeditionary Brigade (NALMEB), a study conducted in 2003 concluded that three operational categories were not appropriate for the future NALMEB. Those operational categories were protection and enforcement; show of force, strikes, raids, and NEO; and amphibious and forcible entry operations. In further analysis of EUCOM and CENTCOM missions, only five or six seemed appropriate for the NALMEB. Two themes emerged from the inappropriate operations: operations were sea based, and the environment was hostile.²²⁹ Unfortunately, these are exactly the type of operations one would want the NALMEB to be able to respond to in the future. The study authors recommended adjustments to the equipment mix and augmentation with other U.S., Norwegian, or NATO forces.²³⁰

²²⁷ Rear Admiral Arthur Brooks, Commander, 17th Coast Guard District, interview by author, Juneau, Alaska, December 14, 2007.

²²⁸ General T. Michael Moseley, “The Nation’s Guardians: America’s 21st Century Air Force,” <http://www.af.mil/shared/media/document/AFD-080207-048.pdf> (accessed April 16, 2008).

²²⁹ Kim Deal, Annemarie Randazzo, and Stephen Guerra, “Deriving Missions for the Future NALMEB Program,” <http://hqinet001.hqmc.usmc.mil/pp&o/POE/POE-60/MCPNPDownloads/CNA%20NALMEB%20Study%20Basic%20Feb03.pdf> (accessed April 16, 2008).

²³⁰ Ibid.

Opportunities.

Military-to-Military Programs and Exercises. The U.S. military has an opportunity to build enduring military relationships and future partners in the Global War on Terror (GWOT) through programs and exercises in the Arctic. It should put emphasis on Arctic states participating in its Arctic exercises. One particular focus should be working as a joint and combined task force with the Canadian military to assess and improve capability to monitor vessel traffic in the western Arctic. Another focus should be working as a joint and combined task force with the Russian military in order to keep it from becoming isolated in the Arctic. All other Arctic states should be invited to these exercises in order to maintain interoperability among them, and to further develop relationships that may be called upon as the U.S. continues to fight the GWOT. Additionally, the U.S. military should allow military students from the other Arctic states to attend its Army and Marine Northern Warfare Training Centers, and should examine opportunities to send American military students to other Arctic states' equivalent schools.

Icebreakers and Ice-Hardened Ships. Both the U.S. and Canada are critically short icebreakers and ice-hardened ships, leaving them both unprepared for increased sea vessel traffic in the western arctic. In 2005, the Canadians announced their determination to maintain sovereignty in the north and initially discussed armed heavy icebreakers at a new port in Iqaluit. However, in 2007, they scaled back their proposal to six to eight Arctic/Offshore Patrol Ships (A/OPS). They plan to use the vessels in the Atlantic and Pacific Oceans as Off-shore Patrol Vessels (OPVs), only allowing them in the Arctic during the summer months. Although not the armed heavy icebreakers they first discussed, these A/OPS "...would be the first genuinely Arctic capable

Canadian naval vessel since the end of 1957.”²³¹ Since the Canadians are not going to procure the necessary ice breakers and ice-strengthened hull ships, there is a great opportunity here for the U.S. to procure them, assist them in patrolling the western Arctic, and by doing so maintain an open Northwest Passage. This may again allow a de facto resolution over the Northwest Passage for expediency’s sake, just as the two countries did in the 1980s after the U.S. sent an icebreaker through the passage. However, in this situation it would lean more towards an open transit passage, whereas the 1988 agreement somewhat reinforced Canadian sovereignty because the U.S. had to inform them prior to any transit through the passage.²³²

Threats.

Middle East Focus. The entire U.S. military has been heavily engaged in the Middle East for the past seven years. Army units in particular have focused their training on Theater Mission Essential Tasks (TMETL) in order to succeed in Iraq and Afghanistan. While this is appropriate for succeeding in those operations, it has left the U.S. military with major problems. First, there is no strategic reserve of ground troops “...ready to respond quickly and decisively to potential foreign crises, whether the internal collapse of Pakistan, a conflict with Iran or an outbreak of war on the Korean Peninsula. Air and naval power can only go so far in compensating for infantry, artillery and other land forces...”²³³ Second, the Army does not have its pre-positioned stocks, which are critical for quick equipping of units. There should be five full combat brigade’s worth

²³¹ Dianne DeMille and Stephen Priestly, “Stephen Harper Announces the New Defense Policy Put Forward by the Conservative Party of Canada – Pt 2,” *Canadian American Strategic Review*, <http://www.sfu.ca/casr/ft-harper1-2.htm>, accessed February 12, 2008.

²³² Douglas M. Johnston, “The Northwest Passage Revisited,” *Ocean Development and International Law* 33, no. 2 (2002): 147-149.

²³³ Ann Scott Tyson, “Military Is Ill Prepared for Other Conflicts,” *Washington Post*, March 19, 2007, <http://www.washingtonpost.com/wp-dyn/content/article/2007/03/18/AR2007031801534.html> (accessed February 12, 2008).

of equipment in pre-positioned stock. The Army used four to provide equipment for the surge in Iraq in 2007, leaving only the South Korea stock. Third, it will take an estimated two to three years and \$17 billion a year for the Marines and Army to recover from "...the ever more rapid pace of war-zone rotations [which] has consumed 40 percent of their total gear, wearied troops and left no time to train to fight anything other than the insurgencies now at hand."²³⁴

NATO Strain. Current operations in Afghanistan are straining the NATO alliance, which is critical in the Arctic region, as five of the eight Arctic states are NATO members. NATO is divided among those states providing Soldiers for combat actions, those who limit their Soldiers to non-combat missions, and those who do not provide Soldiers at all. The British, U.S., Canadians, and Dutch military are taking the heaviest casualties, and all states deal with an indifferent or unsupportive public at home. After more than six years of coalition warfare, one reporter declares that NATO is "...a bundle of frayed nerves and tension over nearly every aspect of the conflict, including troop levels and missions, reconstruction, anti-narcotics efforts, and even counterinsurgency strategy."²³⁵

Economic

Strengths.

Numerous Avenues. As in the political/diplomatic system, the U.S. possesses numerous avenues to influence economics amongst the Arctic states, including the WTO, IMF, the World Bank, etc. The U.S. also has considerable ties to the Arctic states, especially with Canada through NAFTA.

²³⁴ Ibid.

²³⁵ Karen DeYoung, "Allies Feel Strain of Afghan War," Washington Post, January 15, 2008, <http://www.washingtonpost.com/wp-dyn/content/article/2008/01/14/AR2008011402722.html> (accessed February 12, 2008).

Attempts at Diversification of the Economy. Red Dog Mine, the world's largest zinc mine located in the DeLong Mountain Range in Alaska's Arctic region, is a good example of an attempt to diversify Alaska's economy. Due to its remote location, the transportation system is long and costly, as the zinc is trucked 55 miles to a port on the Chukchi Sea for export. When the world price of zinc is low, Red Dog Mine is at a competitive disadvantage. Even so, it is an important asset for Alaska. It provides jobs for the region, demonstrates that a large mine can operate successfully in the area, demonstrates cooperation between local population and a big business by way of a benefit sharing agreement, and serves as an example for other businesses considering development in the area.²³⁶ Although there have been environmental incidents and concerns, Red Dog has been successful overall, with 579,300 tons of zinc concentrate and 124,900 tons of lead concentrate produced in 2003.²³⁷

Alaska also has a service sector, with tourism at its center. During the summer 2007 tourism season, over 1.7 million tourists visited Alaska, bringing an estimated \$1.8 billion to the state. Of those, 1 million came on cruise ships, quadruple the number arriving by ship in 1990.²³⁸ Since cruise ships typically dock in the southern portion of the state at Juneau, Anchorage, and/or Kodiak, it is critical for northern Alaska to focus on the other 700,000 who arrived by plane and car. This number, which represents those tourists who could venture north, has increased 48 percent since 1990.²³⁹

²³⁶ NANA Corporation, "NANA Develops World's Largest Zinc Mine," <http://www.nana.com/pdfs/NANA%20and%20Mining.pdf> (accessed February 11, 2008).

²³⁷ Gerard Duhaime, "Economic Systems," *Arctic Human Development Report* (Akureyri, Iceland: Stefansson Arctic Institute, 2004), 72.

²³⁸ Anchorage Daily News, "Alaska Tourism Numbers Rise," November 14, 2007, <http://www.adn.com/money/industries/tourism/story/81884.html>, accessed February 11, 2008.

²³⁹ Ibid.

Weaknesses.

One Sector Economy. Despite attempts to diversify, Alaska's economy is dominated by oil, accounting for over 25 percent of the GDP in 2006.²⁴⁰ This sector is subject to cyclical activity as oil prices rise and fall. Within its Arctic region, the residents of the North Slope Borough rely on taxes received from on-shore oil businesses to run their administration.²⁴¹

Lack of Infrastructure. The lack of infrastructure in northern Alaska drives up business operating costs, making the region too expensive to be economically feasible for many businesses.

Opportunities.

Development of Intra-Arctic Region Economy. Within the Barents Euro-Arctic Region (BEAR), the involved communities have studied their economies and infrastructure in order to find ways to integrate them and make them more productive. The U.S. may have an opportunity to develop the western Arctic economy in similar fashion.

Further Sector Diversification. In addition to tourism, many northern regions are attempting to diversify their sectors by adding manufacturing, such as fish processing and mineral refining. Of particular note is the electronics industry established around Oulu in northern Finland. It includes companies such as Nokia, and provides 3,000 jobs.²⁴²

Threats.

Spiral into a "Downward Transitional Area". A "downward transitional area" is a low growth development region in terms of its functional relations with the development of the larger

²⁴⁰ U.S. Department of Commerce, Bureau of Economic Analysis, "Gross Domestic Product by State," <http://www.bea.gov/bea/regional/gsp/action.cfm> (accessed April 16, 2008).

²⁴¹ Jad Mouawad, "Tension at the Edge of Alaska," *New York Times*, December 4, 2007, C10.

²⁴² Gerard Duhaime, "Economic Systems," *Arctic Human Development Report*, 73.

territory.²⁴³ With the dwindling supply of oil coming from Prudhoe Bay and the little development in other sectors, Alaska has potential to become one of these areas if it does not expand oil production in other on- or off-shore areas or develop other sectors completely to wean itself from oil revenues.

Disintegrating Relationship with Canada. If the U.S. becomes involved in a bitter dispute with Canada over sovereignty in Arctic waters, including the Northwest Passage and the Beaufort Sea, the cooling of relations could have economic implications. Currently, our economies are intertwined through NAFTA, which has been mutually beneficial. In fact, the U.S.-Canadian trade relationship is "...the largest ever to exist between two nation. Of Canada's 2000 imports, 74 percent came from the U.S., while 86 percent of Canada's total exports were shipped to the U.S."²⁴⁴ It is estimated that U.S. exports to Canada support 2 million U.S. jobs.²⁴⁵ Additionally, Canada has been a stable supply of energy, providing 17 percent of the U.S.'s oil imports and 18 percent of its natural gas imports.²⁴⁶ If these arrangements are interrupted, the U.S. economy could be affected through higher gas prices, loss of jobs, and higher heating costs.

²⁴³ Gerald Hodge and Ira M. Robinson, *Planning Canadian Regions* (Vancouver, British Columbia: University of British Columbia Press, 2002), 102-103.

²⁴⁴ U.S. Commercial Service, Department of Commerce, "Canada-U.S. Trade Relationship," <http://www.buyusa.gov/canada/en/traderelationsusacanada.html> (accessed February 11, 2008).

²⁴⁵ Ibid.

²⁴⁶ U.S. Department of State, Bureau of Western Hemisphere Affairs, "Background Note: Canada," <http://www.state.gov/r/pa/ei/bgn/2089.htm> (accessed February 11, 2008).

Chapter 3

Just as a general may be expected to lead his armies, so are men of prudent counsel to guide circumstances in order that their resolutions may be accomplished, not their motions determined by the event.

- Demosthenes, *The First Philippic*

Given an understanding of the Arctic system itself, and an understanding of the strengths and weaknesses of the U.S. government's instruments of national power, as well as the opportunities and threats they face, this study could conclude with recommendations and conclusions based on those factors alone. However, it is critical to add one other factor when making recommendations and conclusions. That factor is American foreign policy traditions, which must be considered when making decisions about future policy. Three traditions specifically relate to the Arctic. They are Unilateralism (Isolationism), The American System (Monroe Doctrine), and Expansionism (Manifest Destiny). In the Unilateral tradition, the U.S. avoided "entangling alliances" for years until it could enter them from a position of strength.²⁴⁷ Following in this tradition, the U.S.'s involvement in Arctic forums, such as the Arctic Council, should be from a position of strength, as a leader of the Arctic states, using that platform – and expanding its mandate as necessary - to achieve national objectives.

The second tradition relating to American foreign policy in the Arctic region is the American System, referred to by others as the Monroe Doctrine. This tradition compels the U.S. to ensure that "...European powers did not 'come over to America.' For if they did, they would inevitably threaten American interests, force the U.S. to play a role in the European balance of power, or, what was worse, create a second balance of power system in the Western Hemisphere

²⁴⁷ Walter A. McDougall, *Promised Land, Crusader State* (Boston: Houghton Mifflin Company, 1997), 51.

itself.”²⁴⁸ It is critical that the U.S. consider this tradition in reference to the Arctic. It calls upon the U.S. to defend its current or future vital national interests in the Western Hemisphere.²⁴⁹ This researcher believes this tradition should influence the U.S. – Canadian relationship, especially in finding solutions to the Northwest Passage and the Beaufort Sea disputes without involving other powers. This strengthened alliance will keep others from influencing the Western Hemisphere. At the same time, this tradition forces the U.S. to consider whether it can defend its vital interests in the Arctic without enacting UNCLOS. (The hesitation to its enactment has been subjecting the U.S. to a deep seabed mining organization when mining in the high seas. Certain senators feel that this conflicts with another tradition, Liberty.) Finally, this tradition may force future administrations to define vital interests in the Arctic and consider what resources they will use to defend them. For example, what percentage of the nation’s energy must come from internal sources and other stable providers? What trade-off is the nation willing to make between oil, the environment, and indigenous groups’ rights to ensure energy security? What resources must the U.S. have and maintain in the Arctic to ensure this security as sea-going vessel traffic increases? This type of debate is critical, and can be informed by the U.S.’s foreign policy traditions.

The final tradition that relates to American foreign policy and the Arctic region is Expansionism. This tradition is frequently referred to as Manifest Destiny, but it is more than that. It is a logical corollary of other traditions, which demanded that the U.S. to remain free and independent, which meant that it must pursue a unilateral foreign policy, which dictated that it promote the American System, which then prescribed that the U.S. “...must preempt European bids for influence over the vast unsettled lands that remained in North America.”²⁵⁰ If one considers population densities, the northern portions of Canada and Alaska are still vast unsettled

²⁴⁸ Ibid, 59.

²⁴⁹ Ibid, 73.

lands, as the Arctic is a vast and desolate ocean. This researcher believes this tradition is crucial, again in the UNCLOS debate, Canadian-U.S. relations, and also in U.S.-Russian relations. For example, expansion of the U.S.'s economic zone is still possible under UNCLOS if the U.S. ratifies the treaty and submits a claim to more than the standard 200 nautical miles.

These three foreign policy traditions should be considered by policy makers as they decide what the U.S.'s goals, interests, and objectives are in the Arctic region. They informed the following recommendations, which will be discussed in categories of instruments of national power.

Recommendations

Diplomatic.

The U.S. must take a leadership role in shaping the Arctic region before “the combination of new shipping routes, trillions of dollars in possible oil and gas resources, and a poorly defined picture of state ownership makes for a toxic brew.”²⁵¹ The ideal way to shape the region would be through a multilateral diplomatic solution in the form of an agreement among all Arctic states that would “incorporate relevant provisions of UNCLOS and take into account all of the key emerging Arctic issues.”²⁵²

Even as it develops a diplomatic solution among the Arctic states, the U.S. must make a unilateral effort to protect its interests by developing a vision for the Arctic region of the future, objectives derived from that vision, a policy to achieve them, and a method of coordinating that policy. For a number of reasons, it is critical to accomplish this prior to 2012 to ensure the conditions are established to achieve this vision. First, as far as sovereignty over Arctic waters is

²⁵⁰ Ibid, 78.

²⁵¹ Scott G. Borgerson, “Arctic Meltdown,” 71.

²⁵² Ibid, 75.

concerned, Canada must submit its UNCLOS claim by 2013 and the Russian Federation must resubmit its claim within this timeframe. Second, some resources that the U.S. may need in the future, such as icebreakers and ice-strengthened hull vessels, have long lead times, sometimes as much as ten years. Finally, this is a critical window for engaging the Russians before they become further isolated from the other Arctic states and the EU. Although it is not likely to become a rogue state, Russia caused enormous environmental damage in the eastern Arctic as they pursued security during the Cold War. They may be willing to do the same to ensure the continued inflow of petrodollars.

An interagency group, such as the Reagan Administration's IAPG, is critical to the ultimate achievement of the U.S.'s vision. This group would coordinate the lines of the U.S. government's effort among the large number of bureaucracies involved in the region, or policies will be created on an ad hoc, crisis-need basis. This agency needs Presidential-level support and attention, and should answer to the National Security Council as part of our integrated approach to security throughout the world.

The U.S. State Department must use the key nodes and linkages identified to influence the Arctic region as necessary, with the understanding that foreign policy in the Arctic is influenced by actors at all levels, from supranational to local. Key nodes include the Russian Federation and Canada at the state level, the EU at the supranational level, and the indigenous groups at the regional and local levels. Key linkages include the state-level councils that include those key nodes (Arctic Council, Barents Euro-Arctic Council, and the Nordic Council); the indigenous groups' councils, which can influence multiple states' policies (through the Arctic Council) or local policies (through their federal and regional governments); and the UNCLOS, which will soon determine the coastal Arctic states' access to resources in the Arctic.

Information.

The U.S. must use the numerous avenues that it has to communicate its objective for the Arctic region both internally and to the world audience, while continuing to pursue credibility. It must learn from the NGOs the power of the Internet; the information system analysis demonstrated that the Internet is the one media outlet that provides information access beyond the individual's government broadcasts. Because of this potential to reach audiences worldwide, systems analysis identified the Internet as a key link in the entire Arctic system. NGOs are also a key node, and the U.S. government must ensure they have accurate information prior to making taking sides on an issue.²⁵³

The U.S. must also continue to fund Arctic research to ensure that its scientists are viewed as credible experts in that region's changing environment. These scientists are the U.S.'s link to ice, which systems analysis identified as a key node. Predictions about the presence or lack of ice could change the face of the Arctic. For example, numerous industries, such as the shipping and fishing industries, could shift north.

Finally, in coordination with the State of Alaska and the other Arctic states, the federal government should pursue inter-Arctic connectivity to facilitate communication and learning among the region itself. This would supplement the north-south, state-centered information system that currently dominates the Arctic region.

Military.

While continuing to maintain its identified strengths, the Department of Defense (DoD) desperately needs to address the weaknesses, particularly the problem of three combatant

²⁵³ In an interview with representatives from the World Wildlife Foundation and Pacific Environment in Anchorage, Alaska on December 13, 2007, the representatives confirmed that they do not conduct their own research. Instead, they rely on research done by U.S. government organizations.

commanders “owning” the Arctic when in reality not one of them does. One combatant command must be given the mission to avoid issues of neglect, command and control, and resource management. Once given the mission, the combatant commander can develop appropriate military-to-military programs and exercises in support of the U.S.’s objectives, with focus on the key nodes of the Russian Federation, Canada, and the EU.

While DoD may continue to assume risk with land forces untrained in operating in the Arctic environment due to the unlikely need for them, it should study the current Canadian Ranger and the historic Alaska Scouts programs in order to assess the potential benefit of having an irregular indigenous force in northern Alaska.

DoD cannot accept the same risk with naval forces. In reflecting on American traditions, the U.S. has always pursued open seas for trade and lines of communication. Although it is difficult to predict when the Arctic will have a long enough ice-free season to induce more vessels to traverse its waters, that time seems to be approaching, and both the Navy and Coast Guard must have the equipment (particularly ice breakers and ice-strengthen hull vessels) to perform their missions in that environment.

Icebreakers are particularly critical. A 2007 study conducted by the National Research Council, “Polar Icebreakers in a Changing World: An Assessment of U.S. Needs,” concluded that the U.S. “should continue to project an active and influential presence in the Arctic to support its interests.” To do so, it needs “a minimum of three multimission ships and one single mission ship...The nation should immediately begin to program, design, and construct two new polar icebreakers...”²⁵⁴ The council also concluded that the Coast Guard must be “...provided

²⁵⁴ National Research Council, “Polar Icebreakers in a Changing World: An Assessment of U.S. Needs,” (Washington, DC: National Academies Press, 2007), 2, <http://www.nap.edu/catalog/11753.html>, December 10, 2007.

sufficient operations and maintenance budget to support an increased, regular, and influential presence in the Arctic.”²⁵⁵

Finally, the DoD must also reconsider its worldwide footprint. If U.S. forces will be operating in the Arctic region in the future, it must plan for the support of those forces. The military facilities in Alaska are all in its southern portion, a great distance from the Beaufort Sea. There is an air base in Thule, Greenland, but even it must be resupplied by icebreaker in the winter. There are a range of options to address this need, from the creation of new facilities in the U.S. or elsewhere, to facility sharing with Canada, to leasing and support agreements with other Arctic states.

Economic.

The systems analysis identified the WTO and trade itself as key nodes. The U.S. government should recognize this and continue its effort to encourage free trade among the Arctic states, the EU, and other regionally powerful states such as China, Japan, and India. It could be argued that the economic interdependence developed between the U.S and Canada has encouraged those states to set aside other disputes, such as the Northwest Passage, so as not to damage good relations. The U.S. should continue to test this hypothesis of economic interdependence leading to stability and security, especially with the Russian Federation. Russia is a key node in the Arctic system, but is also the one Arctic state that is not a member of the WTO. Additionally, the U.S. can support multinational oil and gas corporations as potential sources of stability, provided they comply with environmental policy.

In conjunction with the State of Alaska, the federal government should support efforts to diversify Alaska’s economy. The residents living within the Arctic region are relying on an

²⁵⁵ Ibid.

industry that is subject to cycles of boom and bust. The U.S. must look for creative solutions in developing sustainable businesses. This must include further development of an infrastructure to support them, although a balance must be maintained between industry and the environment and industry and access to subsistence activities.²⁵⁶ A case worth studying is the Oulu case that was discussed previously in the economic analysis, as it may provide a blueprint for developing a high-tech industry in a northern region.

With the success it has had with NAFTA as its foundation, the U.S. should study the potential benefits of developing an inter-Arctic economy, first in the western Arctic, and then to the entire region. Canada has demonstrated this potential by opening the Port of Churchill and receiving a shipment, across the so-called Arctic bridge, from the Russian Federation.

Conclusions

The Arctic region is already an extremely valuable source of resources for the world, and, as discussed in system potential, it is crucial to the economies of five Arctic states. As demand for stable sources of energy increases and climate change eases extraction of resources, the Arctic will become even more valuable to the Arctic states and the rest of the world; it will be a strategic region in the twenty-first century. While increasing in value, it will also become more accessible to a variety of actors, from shipping companies to drug smugglers. Given its fragile environment, protection of this strategic region will become vital, not only to the indigenous peoples who live there, but to the entire world economy.

This analysis of the Arctic region showed it to be a complex system, with many elements affecting other elements and the system as a whole. When broken down into its political,

²⁵⁶ Alaska has taken steps in this direction with the establishment of Alaska Regional Development Organizations in 1988 and the Office of Economic Development in 2004. OED website is located at <http://www.commerce.state.ak.us/oed/home.htm>.

military, economic, social, infrastructure, and information systems, key nodes and linkages emerged. Key nodes at the supranational level included the WTO, oil and gas corporations, NGOs, the EU, and indigenous groups. Key nodes at the state level included the U.S., Canada, and the Russian Federation, as well as trade among states. At the regional and local levels, indigenous groups and NGOs are key nodes. Ice and the Internet are also key nodes, with influence at all levels. Key linkages included the various state-level councils that involve the Arctic states and indigenous groups, as well as regional councils and the UNCLOS, which affects all coastal states. These nodes and linkages are points of influence for the entire system. They identify who and what U.S. policymakers can attempt to induce to shape the Arctic region.

The U.S. can use its instruments of national power to shape the region. Prior to doing so, it must develop a vision of the future Arctic, objectives to achieve that vision, and a policy to achieve those objectives. With those, each element – diplomatic, informational, military, and economic – can pursue policy within their lines of operation. It is critical that the U.S. develop the vision, objectives, and policies prior to 2012, when a majority of the Arctic coastal states must have submitted their UNCLOS claims. Without them, the United States will lose its ability to shape the region to protect its interests. As warned by Demosthenes over 2,000 years ago, it is far better to have prudent counsel guide circumstances. Otherwise, the United States will be leaving its “motions to be determined by events.”

APPENDIX 1 – Internal Tensions within Arctic States

Alaska provides a good example of the internal political, economic, and social tensions felt by Arctic states. The major tensions are among industry (mainly oil and gas, but also minerals), local indigenous groups, and environmentalists. And the situation is also heavily influenced by the state and federal government.

Alaska's economy is based on hydrocarbons. The reality is that the amount extracted from Prudhoe Bay decreases yearly in a scheduled process that acknowledges the amount left in the bay and the demand for a consistent level of domestically-provided oil. "The TAPS (Trans-Alaskan Pipeline) is only two-thirds full."²⁵⁷ Given this situation, the state governor, Sarah Palin, and both U.S. Senators, Lisa Murkowski and Ted Stevens, support further leasing, both on- and off-shore. The oil industries' multinational corporations, such as Shell Oil, are very interested in drilling off-shore based on the estimated number of reserves, especially in the Outer Continental Shelf (OCS).

From Shell's perspective, major competition in the Arctic has already started. Both Norway and Russia began using their own semi-privatized oil companies to drill off-shore. In 2007 Norway opened a new gas field in the Barents Sea named Snohvit with Statoil as its main partner, and in late 2006 Russia announced that it would use Gazprom to construct the world's largest off-shore gas field, Shtokman, completely on its own.²⁵⁸

²⁵⁷ Kara Moriarty, Deputy Director of the Alaska Oil and Gas Association, interview by author, Anchorage, Alaska, December 13, 2007.

²⁵⁸ The Snohvit project is the first gas development in the Barents Sea and has involved the construction of the first LNG plant in arctic conditions. "Total Announces Snohvit Oil and gas Starts Production" Gulf Oil and Gas, <http://www.gulfoilandgas.com/webpro1/MAIN/Mainnews.asp?id=4776> (accessed December 19, 2007) and Jorn Madslien, "Shock as Russia Goes Solo on Gas Field," BBC News, <http://news.bbc.co.uk/2/hi/business/6035811.stm> (accessed December 19, 2007).

In the U.S., however, tensions between the main stakeholders have halted progress. Shell Offshore Inc. was supposed to start drilling Alaska's OCS in the winter of 2007 after leasing through the U.S. Minerals Management Service (MMS) and acquiring appropriate State of Alaska permits. However, in July the 9th Circuit Court of Appeals issued a temporary stay overturning the MMS authorization based on concerns of environmental groups and the indigenous population. The Court will now decide whether environmental harms were properly considered by MMS.²⁵⁹

Of note, too, is the large role the federal government plays in the State of Alaska. The federal government owns 60 percent of Alaska, and administers it through a number of agencies, including MMS, the Bureau of Land Management (BLM), and the U.S. Fish and Wildlife Service.²⁶⁰ Some of the more controversial proposed on-land drilling sites, such as the Arctic National Wildlife Refuge (ANWR) 10-02 area and the National Petroleum Reserve-Alaska (NPR-A) are federally owned. Mr. Mike Nizich, Governor Palin's staff action officer, said that there is a lot of coordination at many levels between the federal government and the State. However, he also agreed that there can be issues that require coordination and compromise.²⁶¹ This tension between the federal government and the State of Alaska is common to Arctic states, as the northern part of the state is typically providing resources to the southern, more populated part of the state.

Environmental groups can interject their concerns at any point in the leasing, permitting, and drilling phases. Some groups, such as World Wildlife Federation's Alaska office, use a "soft

²⁵⁹ "VICTORY! Pacific Environment and Partners Stop Shell from Drilling!" Pacific Environment, <http://www.pacificenvironment.org/article.php?id=2550> (accessed December 19, 2007).

²⁶⁰ Colleen M. Williams, "Alaska's Resource Development Council," Alaska Business Publishing Company Inc., http://www.accessmylibrary.com/coms2/summary_0286-26329994_ITM (accessed December 19, 2007).

power” approach by trying to work with industry in order to influence them prior to drilling.²⁶² Others use a “hard power” approach, such as the Pacific Environment group. As seen in the Shell Oil Alaska case, Pacific Environment blocked exploratory drilling through legal means.²⁶³ In this situation, they teamed up with the Inupiat, the indigenous people of the North Slope Borough to file this lawsuit. As explained by Mr. Kevin Banks, Director of the Oil and Gas Division of Alaska’s Department of Natural Resources, the indigenous personnel in the North Slope Borough live with two economies. The first is the world-wide economy, which requires dollars. The second is their subsistence economy, which requires access to animals for hunting. In this situation, the Inupiat have nothing to gain in the first economy since off-shore drilling does not provide them with dollars from a property tax as on-land drilling does. And, they have everything to lose in their second economy as they rely on the bowhead whale for subsistence.²⁶⁴ Therefore, it is to their benefit to team with an environmental organization to attempt to block off-shore drilling. (The U.S. Congress is currently working to pass a law that will provide the Inupiat with tax dollars for off-shore drilling in the OCS. This may make off-shore drilling more palatable, although even within the Inupiat there may be a split between the younger generation and the older generation if the benefit is tax dollars, but the subsistence hunting is lost.)²⁶⁵

²⁶¹ Mr. Mike Nizich, Office of the Governor of the State of Alaska, interview by author, Anchorage, Alaska, December 13, 2007.

²⁶² Mr. Bubba Cook, Senior Fisheries Officer, World Wildlife Federation, interview by author, Anchorage, Alaska, December 13, 2007

²⁶³ Ms. Rebecca Noblin, Pacific Environment, interview by author, Anchorage, Alaska, December 13, 2007.

²⁶⁴ The Inupiat’s fear is that seismic testing and drilling will interfere with migratory patterns of the bowhead. Mr. Kevin Banks, Alaska’s Department of Natural Resources, Oil and Gas Division, interview by author, Anchorage, Alaska, December 13, 2007.

²⁶⁵ Mr. Michael Nizich, Office of the Governor of Alaska, interview by author, Juneau, Alaska, December 14, 2007.

The indigenous groups such as the Inupiat, who account for 15 percent of the total Alaskan population, are concerned with preserving their way of life and culture.²⁶⁶ They have a few channels to express their issues and concerns, including teaming with environmental groups. They can also use the state legislative process since they have elected representatives from their borough.²⁶⁷

There is one more factor at play. Alaska is in the unique position of being considered “America’s Wilderness” or “America’s Last Frontier” by many American citizens. As such, it is subject to the opinion of the “Lower 48” on many issues. For example, when Congress passed the bill in 2000 to allow drilling in 10-02 area of the Arctic National Wildlife Refuge, 56 percent of Americans surveyed, as opposed to 29 percent, said that it is not worth the risk to the environment. President Clinton vetoed the bill, stating that the coastal portion of ANWR is a “national monument.”²⁶⁸ In 2007, drilling in ANWR was again blocked, this time in Congress, despite the support of both Alaskan Senators and the Bush Administration.

Between these three groups – the oil industry, environmentalists, and indigenous personnel - and with the additional tension provided by the State of Alaska and the federal government, there is a concern of whether it is possible to have a “win-win” solution. Alaska clearly relies on oil for its economy, and has not looked into diversifying it.²⁶⁹ So, the oil (and gas) industry is critical. However, as noted above, the fate of Alaska is not entirely in the hands of Alaskans. Yet, it is expected to provide resources for the entire country, and to do so with

²⁶⁶ “Building the Alaskan Highway” Public Broadcast System, http://www.pbs.org/wgbh/amex/alaska/peopleevents/p_natives.html (accessed December 19, 2007).

²⁶⁷ This occurred even though Congress originally set aside the 10-02 area for oil and gas drilling. Mr. Michael Nizich, Office of the Governor of Alaska, interview by author, Juneau, Alaska, December 14, 2007.

²⁶⁸ “Most American Want Arctic Refuge Protected from Drilling, New Poll Shows” Common Dreams Progressive Newswire, <http://www.commondreams.org/news2000/1019-03.htm> (accessed December 19, 2007).

stability. The education of the “Lower 48” residents about the dynamics of Alaska is crucial for understanding of this complex situation, but is generally lacking.

Although each of the eight Arctic states has a different political and social system, examining the internal tensions between them within Alaska provides insight into the internal dynamic of all Arctic states. This dynamic influences their internal and external actions, which in turn affects the entire Arctic system.

²⁶⁹ Ibid.

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