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The Course Forward For Arctic Governance

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THE COURSE FORWARD FOR ARCTIC GOVERNANCE

INTRODUCTION

The Arctic region has been undergoing unprecedented and disruptive change over the last several decades. These changes are taking place on at least three interrelated fronts, the first of which is environmental: primarily, global climate change.¹ Stated bluntly, the Arctic is warming twice as fast as the rest of the world and human activity in the area is creating other environmental challenges such as increased pollution and changes to native ecosystems.²

Second, there has been a massive economic transformation of the Arctic in recent years.³ Investment in the Arctic may reach over \$100 billion over the next decade as countries and industries take advantage of record commodity prices to search and extract oil, natural gas, and other resources.⁴ The Arctic is also becoming more accessible to trading vessels

1. For an introduction to the environmental changes affecting the Arctic since at least the 1950's, see James Astill, *The Melting North*, *ECONOMIST* (June 16, 2012), <http://www.economist.com/node/21556798>. For scholarly treatment of the scientific processes happening in the Arctic in particular, see Henry Huntington & Gunter Weller et al., *An Introduction to the Arctic Climate Impact Assessment*, in *ARCTIC CLIMATE IMPACT ASSESSMENT* 1, 10–17 (2005), available at <http://www.acia.uaf.edu/pages/scientific.html> [hereinafter ACIA]. The ACIA was completed at the behest of the Arctic Council, and included dozens of scientists and academics from Arctic Countries. See also NAT'L OCEANIC AND ATMOSPHERIC ADMINISTRATION, *ARCTIC REPORT CARD* (2012), available at <http://www.arctic.noaa.gov/reportcard/> [hereinafter 2012 ARCTIC REPORT CARD]. For a recent report on climate issues from a worldwide perspective, see M.O. Jeffries and J. Richter-Menge, *State of the Climate in 2012*, 94 *BULL. AMER. METEOR. SOC.*, no. 8, Supp. Aug. 2013, at S111–S146, available at <http://www.ncdc.noaa.gov/bams-state-of-the-climate/2012.php>.

2. See V.E. Romanovsky et al., *Permafrost*, in 2012 *ARCTIC REPORT CARD*, *supra* note 1, at 159. The Arctic Report Card is an annual, peer-reviewed publication detailing many of the recent climate and environmental challenges facing the Arctic Region. It is published by the National Oceanic and Atmospheric Administration, an office of the Department of Commerce. See also Magdalena A.K. Muir, *Hydrocarbon Development and Maritime Shipping for the Circumpolar Arctic in the Context of the Arctic Council and Climate Change*, 8 *SUSTAINABLE DEV. L. & POL'Y* 38 (Spring 2008).

3. For an overview of the economic and investment changes occurring in the Arctic region, see CHARLES EMERSON & GLADA LAHN, LLOYD'S, *ARCTIC OPENING: OPPORTUNITY AND RISK IN THE HIGH NORTH* 18–34 (2012), available at http://www.lloyds.com/~media/Files/News%20and%20Insight/360%20Risk%20Insight/Arctic_Risk_Report_20120412.pdf; see also Muir, *supra* note 2.

4. EMERSON & LAHN, *supra* note 3, at 6. As this study and others note, the uncertainties going forward with regard to climate change, regulatory schemes, and political developments mean that this number could go significantly up or significantly down. The majority of this money will go toward the exploration and extraction of oil, natural gas, precious minerals, iron, zinc, and other natural resources, along with the requisite infrastructure to transport these materials. Other industries supporting those endeavors will also be recipients of direct investment as well. Such industries may include housing, local fisheries, scientific research, etc. *Id.*

as the ice melts and icebreaking technology on ships improves.⁵ These changes will bring fabled routes such as the “Northwest Passage” into existence, potentially revolutionizing worldwide shipping by cutting thousands of miles off current routes.⁶

The third major category of change includes the social transformations sweeping Arctic communities.⁷ These changes encompass both progress and challenges for those who call the Arctic home.⁸ Declines in traditional modes of employment, increased outward migration, and economic inequality point to challenges.⁹ At the same time, there are signs of positive social changes as money comes into the region.¹⁰ These new sources of income are contributing to important advances in local education, health care, and transportation infrastructure.¹¹

Therefore, because of the effects of global warming in the Arctic, the Arctic’s impact upon global climate, and the increasing interconnectedness of the Arctic to the rest of the world via globalization, it “is clear that the Arctic cannot go its own way, carving out a developmental path independent of global forces.”¹² Instead, the future of the Arctic must be discussed in a global context, and the successful governance of the region must be a topic of worldwide importance.

5. For an overview of the changing nature of Arctic shipping in the Arctic region, as well as transportation and relevant infrastructure development, see H. Edwin Anderson, III, *Polar Shipping, The Forthcoming Polar Code and Implications for the Polar Environments*, 43 J. MAR. L. & COM. 59 (2012). See also *infra* Part I.C.

6. Tourism is another example of increased investment in the Arctic region, encompassing both maritime cruise shipping and land-based tourism. See Laurence C. Smith, *Unfreezing Arctic Assets*, WALL ST. J. Sept. 18, 2010, at W1.

7. For treatment of some of the most important social changes and dynamics taking place in the Arctic region, see Conference Report, Nordic Council of Ministers, Common Concern for the Arctic (Sept. 9–10, 2008), http://www.norden.org/en/publications/publikationer/2008-750/at_download/publicationfile [hereinafter Nordic Report]. See also John Crump, *Snow, Sand, Ice, and Sun: Climate Change and Equity in the Arctic and Small Island Developing States*, 8 SUSTAINABLE DEV. L. & POL’Y 8 (Spring 2008).

8. Some of the challenges facing the Arctic are similar to challenges of developing areas anywhere in a globalizing world. For those left behind, the question is where the jobs of the future will come from. Nordic Report, *supra* note 7, at 60–64.

9. *Id.*

10. Economic development is bringing significant investment in infrastructure and transfer payments of royalties for the rights to extract mineral resources. *Id.*

11. *Id.* There is even a relatively new “University of the Arctic.” This university, which does not have a physical campus, is a network of universities, colleges, and research institutes in the extreme North that seeks to foster cohesion among northern peoples by building regional identity, improving access to education, and concentrating on issues affecting the Arctic Region. *About UArctic*, UNIVERSITY OF THE ARCTIC, <http://www.uarctic.org/default.aspx?m=6> (last visited Mar. 15, 2014).

12. ARCTIC GOVERNANCE PROJECT, ARCTIC GOVERNANCE IN AN ERA OF TRANSFORMATIVE CHANGE: CRITICAL QUESTIONS, GOVERNANCE PRINCIPLES, WAYS FORWARD (2010), available at <http://www.arcticgovernance.org/>.

In Part I, this Note will discuss the climatic, economic, and social changes that have been taking place over the last several decades in the Arctic. Part II will discuss the current governance framework.¹³ Part III will discuss the economic, social, and political goals that should inform changes in Arctic governance. It also will argue that economic development of the Arctic region can be and must be consistent with rigorous environmental protections. Part IV will discuss specific recommendations and potential improvements to a comprehensive framework for the future.

The scope of this subject is so vast and complex that it cannot be dealt with exhaustively within the space available here. Therefore, the goal of this Note is to argue for the need to think comprehensively about Arctic governance, to suggest goals for Arctic governance, and to establish the parameters within which this conversation should take place.

I. THE CHANGING ARCTIC

A. *Defining the Arctic*

The Arctic is a vast region, richly diverse in ecology, weather, animal life, and the extent of human impact.¹⁴ Thus, it is important to have a working definition of the geographic area discussed in this Note. This Note uses a broad definition of the Arctic, corresponding closely to that used by the Arctic states themselves.¹⁵ This encompasses land and sea areas north of 60 degrees for the United States, Canada, Russia, Norway, Sweden, and Finland, and the whole of Greenland and Iceland. So defined,

13. For an overview of some of the governance issues, topics, proposals, and analysis, see *id.* See also Clive Schofield et al., *Boundaries, Biodiversity, Resources, and Increasing Maritime Activities: Emerging Oceans Governance Challenges For Canada In The Arctic*, 34 VT. L. REV. 35 (2009); TIMO KOIVUROVA & ERIK J. MOLENAAR, WORLD WILDLIFE FUND, INTERNATIONAL GOVERNANCE AND REGULATION OF THE MARINE ARCTIC (2010), available at http://assets.panda.org/downloads/3in1_final.pdf.

14. Sometimes the “Arctic” denotes both land and sea north of the Arctic Circle (66 degrees, North), though Arctic countries themselves often generally define Arctic areas as being north of 60 degrees. ARCTIC COUNCIL, ARCTIC BOUNDARIES, available at <http://www.arctic-council.org/images/maps/boundaries.pdf>. Another possible definition is that used by the ACIA: “The Arctic is a single, highly integrated system comprised of a deep, ice covered, and nearly isolated ocean surrounded by the land masses of Eurasia and North America, except for breaches at the Bering Strait and in the North Atlantic.” Huntington & Weller et al., *supra* note 1, at 10. Approximately two-thirds of the Arctic is ocean. *Id.* at 12.

15. For example, Congress has defined the Arctic as “all United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas; and the Aleutian chain.” 15 U.S.C. § 4111 (2013).

the Arctic encompasses over one sixth of the world's landmass: thirty million square kilometers.¹⁶ Despite its grand size, the Arctic has been sparsely populated throughout human history. Presently, approximately four million people call the Arctic home.¹⁷

B. Environmental Changes

The environmental changes affecting the Arctic encompass several broad categories. The most important of these is global climate change, though increased pollution from natural resource developers, shipping, and tourism also represent challenges to the Arctic region.

1. Global Climate Change

The Arctic region is feeling the effects of global climate change more severely and more quickly than almost anywhere else on earth—the “Arctic Amplification”—because of various complex and interrelated phenomena.¹⁸ Since 1951, the Arctic has warmed twice as fast as the rest of the world, as average temperatures have increased by 1.5 degrees Celsius,¹⁹ while global average increases have been 0.7 degrees.²⁰ The extreme North is even experiencing the effects of climate change more quickly than the Antarctic.²¹

16. ARCTIC COUNCIL, ARCTIC COOPERATION AND PARTNERSHIP (2010), available at www.arctic-council.org/eppr/wp-content/uploads/2010/04/Arctic-Council-fact-sheet.pdf. For a discussion of the Arctic Council's description of the Arctic region, see *About the Arctic Council*, ARCTIC COUNCIL (Jan. 9, 2013), <http://www.arctic-council.org/article/about>.

17. ARCTIC COOPERATION AND PARTNERSHIP, *supra* note 16. See also Huntington & Weller et al., *supra* note 1, at 13. These numbers mark the apogee of human involvement with the Arctic. Although humans have been present in the Arctic since at least the last ice age, the twentieth century has seen dramatic increases in immigration to the Arctic. Today, non-indigenous persons outnumber indigenous ones in many regions, drawn by many of the economic changes that have been sweeping the region. *Id.*

18. EMERSON & LAHN, *supra* note 3, at 11.

19. Astill, *supra* note 1. It is important to note that different areas within the Arctic may have experienced somewhat less or somewhat more warming, and certain methods of measuring may give different impressions of the scale of the warming. For instance, according to the ACIA, between 1954 and 2003, the mean annual surface air temperature rose by two to three degrees Celsius in Alaska and Siberia, thus almost doubling the rate of warming felt by the Arctic as a whole. SUSAN JOY HASSOL, IMPACTS OF A WARMING ARCTIC: ARCTIC CLIMATE IMPACT ASSESSMENT 23 (2004), available at <http://www.amap.no/documents/download/1058>.

20. Astill, *supra* note 1.

21. See generally John Turner & Jim Overland, *Contrasting Climate Change in the Two Polar Regions*, 28 POLAR RES. 146 (2009), available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1751-8369.2009.00128.x/pdf>. “The two polar regions have experienced remarkably different climatic changes in recent decades. The Arctic has seen a marked reduction in sea-ice extent throughout the year, with a peak during the autumn. . . . In contrast, the extent of Antarctic sea ice has increased, with

Much of Arctic Amplification is attributable to atmospheric mixing, whereby warm air from the equators moves to the poles.²² There is more atmospheric mixing in the northern hemisphere than the southern hemisphere, and the movement of moisture and warm water currents from the equator amplifies this trend.²³

Reductions in sea ice and snow cover are another important factor in Arctic Amplification. As the region becomes less white, it absorbs more heat instead of reflecting it.²⁴ Thus, there is some level of consensus that the Arctic region is especially vulnerable to climate change.²⁵ This is significant because the Arctic in turn has a unique impact upon global climate change in the rest of the world, including the possibility of rising sea levels as Arctic glaciers melt.²⁶ Therefore, the various climate phenomena occurring in the Arctic “will affect the Earth’s climate system as a whole.”²⁷

the greatest growth being in the autumn.” *Id.* at 146. While “[t]here has been large-scale warming across much of the Arctic, with a resultant loss of permafrost and a reduction in snow cover. . . . [t]he bulk of the Antarctic has experienced little change in surface temperature over the last 50 years.” *Id.* See *infra* note 22 and accompanying text for an explanation of the physical processes by which this “Arctic Amplification” takes place.

22. Part of this is explained by geography. While in both hemispheres the atmosphere moves heat from the equator to the poles, this process is much more efficient in the northern hemisphere. Astill, *supra* note 1. Factors include the large mountain ranges in the northern hemisphere in America, Europe, and Asia “that help mix warm and cold fronts, much as boulders churn water in a stream.” *Id.* Antarctica, which is surrounded by ocean for hundreds of miles, experiences much less atmospheric mixing. *Id.*

23. *Id.*

The land masses that encircle the Arctic also prevent the polar oceans [from] revolving around it as they do in Antarctica. Instead they surge, north-south, between the Arctic land masses in a gigantic exchange of cold and warm water: the Pacific pours through the Bering Strait, between Siberia and Alaska, and the Atlantic through the Fram Strait, between Greenland and Norway’s Svalbard archipelago. That keeps the average annual temperature for the high Arctic (the northernmost fringes of land and the sea beyond) at . . . -15°C. . . . The Antarctic . . . [has] an average annual temperature of -57° C.

Id.

24. EMERSON & LAHN, *supra* note 3, at 11.

25. This view is seconded by the 2005 ACIA, *supra* note 1, which “predicted that the Arctic will feel the effects of climate change sooner and more severely than other regions of the earth.” Crump, *supra* note 7, at 8.

26. Gunter Weller et al., *Summary and Synthesis of the ACIA*, in ACIA, *supra* note 1, at 989, 990. “Changes in climate and UV radiation in the Arctic will not only have far-reaching consequences for the arctic environment and its peoples, but will also affect the rest of the world, including the global climate. The connections include arctic sources of change affecting the globe, e.g., feedback processes affecting the global climate, sea-level rise resulting from the melting of arctic glaciers and ice sheets, and arctic-triggered changes in the global thermohaline circulation of the ocean.” *Id.*

27. ARCTIC GOVERNANCE PROJECT, *supra* note 12, at 2.

2. Other Environmental Challenges

Pollution generated from increased human activity in the Arctic is another major environmental concern.²⁸ For example, natural seeps in pipelines and oil rigs are a major source of petroleum hydrocarbon contamination in the Arctic environment.²⁹ Another source of pollution is the increasing number of ships operating in the area.³⁰ In this context, the most prevalent problems are bunker spills and exhaust emissions.³¹ Indeed, these are likely the biggest risks apart from major spills.³²

In addition to the activity of human beings within the Arctic itself, there are sources of pollution from outside the region that impact the Arctic environment. The most important of these includes soot from the emissions of coal-burning power plants, which migrates toward the poles, increasing the absorption of heat in the atmosphere.³³

Arguably, however, the most visible and potentially devastating environmental concern hanging over Arctic activities is the potential for a repeat of the Exxon-Valdez incident. Such incidents would be even more dangerous in the Arctic context because of the unique ecosystem, remote location, and harsh conditions.³⁴

All of these events impact local ecosystems, potentially causing more concern. This challenge is illustrated by recent trends in Arctic fisheries, which have both environmental and social implications.³⁵ For example, as

28. Muir, *supra* note 2, at 38–39.

29. *Id.*

30. See Anderson, *supra* note 5. For treatment of the economic phenomenon surrounding increased shipping in the Arctic, see *infra* Part I.C.3.

31. *Id.* at 74.

32. *Id.*

33. EMERSON & LAHN, *supra* note 3, at 38. More specifically, black carbon, which are small particles of pollution resulting from the burning of fossil fuels, migrates toward the Arctic region while in the atmosphere. This black carbon absorbs additional ultraviolet radiation and is associated with Arctic warming. *Id.* Another migratory pollutant is airborne mercury. Approximately 100 tons of this substance is deposited in the Arctic Ocean annually from industrial sources not located in the Arctic region. *Id.*

34. Indeed, the Exxon Valdez incident, which spilled between 257,000 and 700,000 gallons of oil, was one of the most devastating environmental disasters in this country's history. Others, however, including the sinking of the Selendang Ayu in 2004, spilled over 360,000 gallons of oil. Beyond the environmental impact, however, the accident also cost the company over \$112 million. Anderson, *supra* note 5, at 65.

35. For a fuller discussion of this latter point, see Jennifer Jeffers, *Climate Change and the Arctic: Adapting to Changes in Fisheries Stocks and Governance Regimes*, 37 *ECOLOGY L.Q.* 917, 958–59 (2010). In general, global climate change may dramatically affect fish populations in the Arctic. This is because fish generally have a very narrow temperature within which they thrive. This is true because fish are ectotherms, meaning that their body temperature is dictated by the surrounding waters, and thermal levels outside of their narrow range are less than optimal. Frederick J. Wrona et

global temperatures rise, ice melts, and salt content decreases. As a result, some native fish are unable to find suitable food. Also, foreign species from lower latitudes are moving north, competing for food.³⁶ This in turn causes ripple effects throughout the food chain as larger animals find it more difficult to hunt, or change their diets.³⁷ This is an especially pressing concern in areas where the indigenous populations may live in reliance upon local fishing grounds.³⁸

C. Economic Developments

Global climate change and economic development in the region affect each other in a synergistic fashion.³⁹ The combined effects of high global prices for hydrocarbons, melting ice, and technological progress mean that the natural resource base of the Arctic is now increasingly significant and commercially viable.⁴⁰

1. Natural Resource Development

The Arctic has potentially huge amounts of oil and natural gas.⁴¹ Countries like Norway have begun handing out hydrocarbon exploration

al., *Freshwater Ecosystems and Fisheries*, in ACIA, *supra* note 1, at 353, 394. The same principle holds true for the smaller fish that are food for bigger fish. Thus, if a small temperature or other ecosystem change forced a particular species from an area, and that species was a food source for larger fish and so on, large scale migrations in fish populations would follow. *Id.* at 418. Indeed, this is what the ACIA predicts. Warming temperatures will allow for the northerly migration of some species of fish, displacing native species, while some species could lose their food sources altogether. *Id.* Therefore, the effects of warming in the Arctic will be uneven. In the case of some important commercial species of fish, including Atlantic Cod, Herring, and Pollack, moderate warming will be very beneficial. It will expand their natural breeding grounds, as they generally thrive in warmer waters. *Id.* Other, more northerly fish, however, will see increased competition for food and resources. *Id.*

36. Another great illustration of this point concerns the copepod *Calanus glacialis*. This creature is only about 4mm long, but most animals in the Arctic depend upon it at some point in the food chain. James Astill, *Pity The Copepod*, *ECONOMIST* (June 16, 2012), <http://www.economist.com/node/21556804>. Cod, haddock, and other fish eat the copepod, and walrus and polar bears in turn eat the fish dependent on this crustacean. *Id.* *C. glacialis* feeds upon special algae on the edges of polar ice. This algae is appearing earlier in the year, at a time that conflicts with the copepod's hibernation cycle. *Id.* It may thus miss out on this food. In any event, different copepods which are not as appropriately nutritious for larger animals are moving north, competing with *C. glacialis*. *Id.* This may disrupt some food supplies for Arctic animals higher up the food chain. *Id.*

37. *Id.*

38. See Jeffers, *supra*, note 35, at 960.

39. EMERSON & LAHN, *supra* note 3, at 8.

40. *Id.*

41. See U.S. GEOLOGICAL SURVEY, CIRCUM-ARCTIC RESOURCE APPRAISAL: ESTIMATES OF UNDISCOVERED OIL AND GAS NORTH OF THE ARCTIC CIRCLE (Peter H. Shauffer ed., 2008), available at <http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf>.

licenses across the region.⁴² Much of this excitement has centered upon recent estimates from the United States Geological Survey (USGS), which reports that the Arctic may have up to 90 billion barrels of oil and 1,669 trillion cubic feet of natural gas.⁴³ This would make the Arctic a significant addition to global reserves.⁴⁴

Hydrocarbons are not all that are at stake. The Arctic is rich in other minerals.⁴⁵ One of the world's largest "zinc mines is in Arctic Alaska, and the biggest nickel palladium mine is in the Russian Arctic."⁴⁶ Greenland is building a \$2.5 billion iron-ore mine that would be worth more than the island's GDP by itself.⁴⁷ "Mining in the [Arctic] region is poised for growth, for much the same reasons as energy production: high commodity prices, improved technology, and keen Arctic governments" interested in

42. On January 17, 2012, Ola Borten Moe, Norway's minister for oil and petroleum, awarded twenty-six production licenses for developed offshore oil areas in the Norwegian and Barents Sea. Quirin Schiermeier, *The Great Arctic Oil Race Begins*, NATURE (Jan. 31, 2012), <http://www.nature.com/news/the-great-arctic-oil-race-begins-1.9932>. The story in Norway is especially representative of the shift in future resource production toward the North. Whereas Norway has always been a major producer of petroleum products, most of that has been in the North Sea area, which is a non-Arctic area. Now, however, "the 'new oil provinces' are in the Arctic." *Id.* Indeed, Statoil, the Norwegian oil and gas company, hopes to "extract one million barrels of oil equivalent a day from new wells in the Arctic." *Id.*

43. EMERSON & LAHN, *supra* note 3, at 19. These numbers represent approximately thirteen percent and thirty percent, respectively, of the world's estimated undiscovered reserves, although the percentages were calculated before more recent discoveries of shale gas deposits were fully factored in. See U.S. GEOLOGICAL SURVEY, *supra* note 41. Thus, while the absolute numbers are the same, the Arctic's percent of the known world reserves may be slightly lower. The study also estimated that there are 44 billion barrels of natural gas liquids in the Arctic. *Id.* Natural gas liquids differ from natural gas as otherwise used in this Note because, as its name implies, it is a liquid. Natural gas, occurring in its natural state, is in a gaseous form. *Id.*

44. U.S. GEOLOGICAL SURVEY, *supra* note 41. Importantly, however, some dissenters believe that the projections of the USGS are far too optimistic. According to a joint study by Wood Mackenzie and Fugro Roberson, the "Arctic potential is significantly less than previous estimations had suggested, and the mix of resources have been found to contain much less oil and more gas." Press Release, Wood Mackenzie & Fugro Rogertson, Arctic Role Diminished in World Oil Supply (Nov. 1, 2006) (available at <http://www.woodmacresearch.com/cgi-bin/wmprod/portal/corp/corpPressDetail.jsp?oid=751298>). The study found that there is "only approximately one quarter of the oil volumes previously assessed in key North American and Greenland basins. Most importantly, the study reveals the Arctic to be a gas province, with 85 percent of the discovered resource and 74 percent of the exploration potential as gas." *Id.* If this study is accurate, then the ratio of natural gas to oil resources in the Arctic region will militate against large scale development in the near term "because remote gas is often much harder to transport to markets." *Id.*

45. Attempts to exploit the mineral wealth of the region go back well over a century. Examples include "[t]he 1897–99 Klondike gold rush, in northern Canada, one degree outside the Arctic Circle" and "[t]he iron ore in Swedish Lapland [that] sustained Germany during the Second World War and helped to rebuild Europe after it." James Astill, *Hidden Treasure*, ECONOMIST (June 16, 2012), <http://www.economist.com/node/21556800>.

46. *Id.*

47. *Outsiders in the Arctic*, ECONOMIST, Feb. 2, 2013, at 49.

economic growth.⁴⁸ Thus, it is not difficult to see why many analysts believe that investment in the Arctic could reach \$100 billion within the next ten years.⁴⁹

2. Infrastructure

The documented increase in economic activity in the Arctic region is also leading to significant investment in infrastructure, mostly in the Arctic Ocean itself. Currently, “[t]he only big offshore Arctic production site is the Snohvit gas field in the Norwegian Barents Sea.”⁵⁰ However, this is changing and current investment is of a widely diverse nature. “Private companies have snapped up Canada’s northernmost railroad and port . . . [and] \$2.8 billion in offshore energy leases.”⁵¹ Russia is investing in port installations, new oil and coal terminals, and a railway head at Murmansk.⁵² Meanwhile, Norway shifted its military command center to the Arctic in 2009.⁵³ In addition to investment because of future opportunities, some increase in infrastructure spending is required because melting permafrost is making existing roads and railways impassable during summer months.⁵⁴

48. Astill, *supra* note 45.

This is already obvious in the Canadian Arctic, where ArcelorMittal, a big steelmaker, and a partner paid \$590 million for a large iron-ore deposit in 2011. But its effects may be most dramatic in Greenland, which has issued over 100 exploration permits to companies looking for metals and gemstones. High operating costs and harsh conditions will limit the rate of extraction, but Greenland will be mining lots of iron, uranium, gold, rare earths, diamonds and rubies before it gets an oil industry.

Id.

49. EMERSON & LAHN, *supra* note 3, at 6. This investment will be largely in the development of non-renewable natural resources, and in infrastructure construction and renewal. *Id.* at 9.

50. Astill, *supra* note 45.

51. Smith, *supra* note 6.

52. James Astill, *Short and Sharp*, ECONOMIST (June 16, 2012), <http://www.economist.com/node/21556803>.

53. Astill, *supra* note 1.

54. Stated another way, climate change may, at least in the short term, create new vulnerabilities in current infrastructure as roads that used to be frozen year-round may now be slushy and impassable at times. Northern railways are vulnerable to thawing of the permafrost, which can cause the rack to buckle, leading to derailments. Repairs have already cost millions of dollars. EMERSON & LAHN, *supra* note 3, at 16. Future Arctic infrastructure will need to be able to adapt to much more diverse environmental and weather conditions, especially over the multi-decade lives of the infrastructure projects. *Id.* at 15.

3. Shipping

Apart from the natural resources in which the Arctic is rich, opportunities to revolutionize shipping routes worldwide are presenting themselves in the face of the retreating ice.⁵⁵ Consequently, the presence of “commercial vessels in the Arctic . . . is expected to grow exponentially over the next decades.”⁵⁶

The appeal of these routes is obvious: “The Northwest Passage offers a staggering 9,000 km (4,860 nautical miles (nm)) of distance saving over the traditional route between Europe and Asia via the Panama Canal”⁵⁷ The Northern Sea Route (NSR), along the coast of Siberia, “cuts the distance between western Europe and east Asia by roughly a third.”⁵⁸ Voyages along the NSR are increasing rapidly,⁵⁹ and it is thought that approximately 6000 vessels operate in the region during the shipping season.⁶⁰ Potentially even more important is the impact of a longer shipping season as the Arctic warms. By some estimates, the length of the shipping season could eventually quadruple.⁶¹ In anticipation of this confluence of factors, some of the major shipping nations in the region are building up their icebreaking fleets.⁶²

55. Various routes across the Arctic, including the Northwest Passage and the Northern Sea Route (NSR), long sought-after throughout history, are becoming a reality. Anderson, *supra* note 5. Such routes as these could dramatically shift, if not revolutionize, shipping lanes, because they offer quicker ways to get products to markets by cutting the distance between exporters of goods and their final consumers. *Id.* Other analysts suggest that development of Arctic shipping lanes will increase strategic security for Western nations by decreasing reliance on unstable potentially unsafe shipping lanes through the Suez Canal and in the Indian Ocean, especially around the Horn of Africa. Astill, *supra* note 52.

56. Anderson, *supra* note 5. The growth will largely be in commercial vessels involved in the petroleum and mining industries in the Arctic. *Id.* The much larger percentage of worldwide shipping traffic (container shipping) will probably not be a major part of Arctic shipping for some time. *Id.* Beyond the natural resources extraction industry, shipping activity in the Arctic presently falls largely into only a few categories: (1) northern community supply; (2) fishing; (3) tourism; and (4) assorted research and coast guard vessels, usually operated by local governments. *Id.* at 62.

57. Schofield, *supra* note 13, at 41. The savings would be over 17,000km (9,180 nautical miles) when compared to the Cape Horn route. *Id.*

58. Astill, *supra* note 1. On the other hand, the Arctic routes are still dangerous, because only ten percent of Arctic waters are charted, and many ports are lacking in basic infrastructure. Anderson, *supra* note 5, at 64.

59. Astill, *supra* note 52.

60. Anderson, *supra* note 5, at 61.

61. *See id.* at 64. Currently, the shipping season along the NSR is 30 days. According to some projections, “during the next 100 years, the sailing season along the NSR will gradually increase from the current 30 days to over 120 days.” *Id.* Assuming that ice breaking technology improves this could increase to 170 days per shipping season. *Id.*

62. Astill, *supra* note 52.

4. *Tourism*

Increases in tourism will be another economic development to watch in the coming decades.⁶³ Both land-based tourism and cruise ships are booming as more parts of the Arctic become accessible for longer portions of the year due to the general warming trends.⁶⁴ Between 2004 and 2007, the number of passengers traveling to the Arctic on cruise ships more than doubled.⁶⁵ In 2008, “nearly 400 cruise-ships arrived in Greenland alone.”⁶⁶

Finally, although extraction, infrastructure, shipping, and tourism are the most visible economic phenomena currently taking place in the Arctic, other opportunities may soon make an impact. General scientific research,⁶⁷ such as bio-pharmaceutical research, continues to evolve alongside these more traditional economic changes.⁶⁸

D. *Social Changes*

The massive climatic and economic developments happening in the Arctic have had significant and complex social impacts on regional communities in both positive and negative ways.⁶⁹

On the positive side, investment in infrastructure, extraction, and transportation of mineral resources creates jobs and companies engaged in

63. In Greenland, for example, the number of booked hotel nights has increased from 179,349 in 2002 to 236,913 in 2008. “In Longyearbyen, on Svalbard in Norway, these numbers rose from around 30,000 in 1995 to over 89,000 in 2008 (before declining to 77,000 in 2010).” Tourists themselves have been coming from farther away as well. EMERSON & LAHN, *supra* note 3, at 31. The story is similar for cruise ships in the area. There has been such an increase in cruise traffic that an Association of Arctic Expedition Cruise Operators has been set up to facilitate the sharing of best practices and for support of cruise lines. ASSOCIATION OF ARCTIC EXPEDITION CRUISE OPERATORS, <http://www.aeco.no/> (last visited Mar. 5, 2014).

64. EMERSON & LAHN, *supra* note 3, at 31.

65. Smith, *supra* note 6.

66. *Id.*

67. “The U.S. National Science Foundation spends nearly a half-billion dollars annually” on polar research, and NASA’s investments in the region may soon reach \$2 billion as it develops new satellites to map the polar regions. *Id.*

68. For example, there is also interest in the living resources of the Arctic as a source of genetic information. The adaptive tendencies of Arctic species and their abilities to survive in extreme conditions evidently make the study of the creatures worthwhile, and could lead to medical breakthroughs. Schofield, *supra* note 13, at 39.

69. In 2008, several Arctic countries gathered at a conference organized by the Nordic Council of Ministers at Illulissat in Greenland, entitled “Common Concern for the Arctic,” in part to address some of these questions. See Nordic Report, *supra* note 7, at 62–66. Some of the challenges addressed included losses of traditional modes of employment, vast wealth disparities with the arrival of resource development, and a lack of assistance in helping locals transition to a modern economy. *Id.* Positive changes included investments in infrastructure, transportation, education and health, most of which comes from the royalties of the extractive industries. *Id.*

this development pay significant royalties to local property owners.⁷⁰ Thus, there has been an influx of money from sources as diverse as companies dealing in petroleum, precious minerals, and tourism. Direct royalties are also contributing to more broad-based economies with a growing service sector.⁷¹ Thus, wage work in administration, education, and social services is the main source of income for most Arctic families now, as this sector generates more than seventy percent of the economic activity and eighty percent of the jobs in this region.⁷²

On the other hand, a great deal of the money being made in the Arctic does not stay there, but instead benefits outsiders in the developed world.⁷³ It is also argued that the money that does stay in the Arctic results in “social stratification, inequity in wealth distribution, and perceived deprivation.”⁷⁴ In some cases, economic development means demographic imbalances as the young move away in search of educational and job opportunities.⁷⁵

Amplifying this problem is the fact that the Arctic has always had a different economic and social system than much of the developed world. Renewable resources such as fisheries and hunting have been the economic basis for most northern communities for centuries.⁷⁶ This leads to the criticism that Arctic communities are at a structural imbalance when dealing with the developed world: namely, that “the impacts of climate change are being felt by parts of the world that currently lack the resources to cope with the rapid change they are experiencing.”⁷⁷

70. *Id.* at 62.

71. *Id.*

72. *Id.* This is especially true for women, contributing to a rising number of households that depend on the income generated by females. *Id.*

73. *Id.* at 19.

74. *Id.* at 61.

75. Some Arctic communities have only 6 or 7 women to every 10 men in younger cohorts. *Id.* at 20.

76. *Id.* at 61. As with globalization elsewhere, worldwide competition in these industries has had a downward effect on prices, driving a concomitant increase in the scale of production, which in turn requires fewer workers. *Id.*

77. Crump, *supra* note 7, at 8. This point of view holds that the Arctic, as well as smaller, developing island states are “among the most vulnerable to climate change effects yet they have contributed least to global greenhouse gas (“GHG”) emissions.” *Id.* Some groups have taken more radical positions in their protestation of changes. One such position included a petition against human rights violations supposedly committed by the United States to the Inter-American Commission on Human Rights. In 2005, representatives of the Inuit Circumpolar Conference petitioned the Inter-American Commission on Human Rights for help “in obtaining relief from human rights violations resulting from the impacts of global warming and climate change caused by acts and omissions of the United States.” Sheila Watt-Cloutier, Petition to the Inter American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States 1 (Dec. 7, 2005), available at http://www.ciel.org/Publications/ICC_Petition_7Dec05.pdf.

Thus, those in the Arctic region have complex views of the recent changes. Some see the changes as challenges to traditional lifestyles, while others envision new opportunities that their previous lives could never have afforded.⁷⁸

II. THE CURRENT REGIME

All of these changes in the Arctic have happened within a governance framework that is a patchwork of legal regimes.⁷⁹ The first layer in the legal regime consists of the eight sovereign Arctic states operating through their domestic legal systems.⁸⁰ The next layer includes binding and non-binding multilateral and bilateral treaties, as well as customary international law.⁸¹ At the broadest level, though, the last few decades have seen a focus on the Arctic region as a whole. This focus is manifested

The petition asserts that “the United States is obligated by its membership in the Organization of American states and its acceptance of the American Declaration of the Rights and Duties of Man to protect the rights of the Inuit.” *Id.* The petition requests that the Commission “prepare a report setting forth all the facts and applicable law, declaring that the United States of America is internationally responsible for violations of rights.” *Id.* at 7. The Inter-American Commission on Human Rights declined to hear the petition, but later held a hearing on the issue of global warming. Jessica Gordon, *Inter-American Commission on Human Rights to Hold Hearing After Rejecting Inuit Climate Change Petition*, 7 SUSTAINABLE DEV. L. & POL’Y 55 (Winter 2007).

78. Some of the challenges facing the Arctic are similar to challenges of developing areas anywhere in a globalizing world. For those left behind, the question is where the jobs of the future will come from. *See* Nordic Report, *supra* note 7, at 62–66.

79. Others have characterized it as a “hodgepodge” of international treaties, bilateral agreements, and domestic law. Bonnie A. Malloy, *On Thin Ice: How A Binding Treaty Regime Can Save The Arctic*, 16 HASTINGS W.-NW. J. ENVTL. L. & POL’Y 471, 481 (2010).

80. Jeffers, *supra* note 35, at 923. Further complicating the issue of sovereignty and jurisdiction is the fact that several indigenous groups within Canada, Russia, and the United States have their own semi-autonomous governments. *Id.* While that is often a salient and politically important issue in the domestic politics of Arctic countries, it attracts less attention at an international level. Hence the discussion of indigenous status will be limited to those instances in which international law is affected, or indigenous groups have been incorporated into the governance mechanisms, such as the Arctic Council. *Id.*

81. One example includes the United Nations Convention on the Law of the Sea (“UNCLOS”). United Nations Convention on the Law of the Sea art. 2, Dec. 10, 1982, 1833 U.N.T.S. 397. The United States signed but has not ratified UNCLOS. *See id.*; *see also* *Status of Multilateral Treaties Deposited with the Secretary-General*, UNITED NATIONS TREATY COLLECTION ch. XXI, § 6, available at <https://treaties.un.org/Pages/ParticipationStatus.aspx>. However, the Ilulissat Declaration, adopted by the five coastal states bordering on the Arctic Ocean—Canada, Denmark, Norway, The Russian Federation, and the United States of America—implies that UNCLOS is binding law, and the United States accepts it as a matter of customary international law. Hans Corell, *The Arctic: An Opportunity to Cooperate and Demonstrate Statesmanship*, 42 VAND. J. TRANSNAT’L L. 1065, 1067–68 (2009). Other multilateral actors include the International Maritime Organization (IMO), which is responsible for worldwide maritime safety and pollution prevention. *Id.* at 1070–71.

in the Arctic Council. These various layers impact almost every aspect of Arctic life, work, politics, and law.⁸²

A. *The Arctic Council*

The Arctic Council began in 1996 as a forum for Arctic countries to discuss environmental issues.⁸³ As a successor to the Arctic Environmental Protection Strategy, it has become a major regional club, especially over the last six years. There are eight members: Canada, Russia, Denmark (through Greenland), Norway, Sweden, Finland, Iceland, and the United States.⁸⁴ As of 2012, there are also six “Permanent Participants”

82. Significantly, however, the Arctic Council is currently prohibited from discussing security and military affairs. See Declaration on the Establishment of the Arctic Council, Sept. 19, 1996, 35 I.L.M. 1387, 1388 n.1 (“The Arctic Council should not deal with matters related to military security.”) [hereinafter Ottawa Declaration]. Some analysts think that there should be a change to the long-standing policy of the Arctic Council to not discuss security issues, because there is already a marked increase in military activity in the Arctic. See Robert Huebert, *Arctic Security*, CENTRE FOR MILITARY AND STRATEGIC STUDIES, UNIVERSITY OF CALGARY, <http://cmss.ucalgary.ca/arcticsecurity> (last visited Aug. 29, 2013). Although the Arctic is generally a region marked by productive cooperation between stakeholders, the possibility exists that current military buildups could lead to strained relations in the event of accidents or flare-ups in disputes over territory. James Astill, *Too Much To Fight Over*, ECONOMIST (June 16, 2012), <http://www.economist.com/node/21556797>. This is especially important due to the unique relationship that many of these countries have with their Arctic regions. When this is combined with the large amount of money and resources at stake in the Arctic, the case for cooperative and transparent discussions of security and military issues becomes even more compelling. *Id.*

83. See Arctic Environmental Protection Strategy, June 14, 1991, 30 I.L.M. 1627. This Strategy, adopted in 1991, grew out of “recognition that many of the environmental problems that individual nations had been addressing, were in fact shared amongst the eight [Arctic nations].” *Id.* at 1633. Six environmental issues were mentioned: “persistent organic contaminants, oil, heavy metals, noise, radioactivity, and acidification.” *Id.* at 1634. Initial measures included the Arctic Monitoring and Assessment Program (AMAP) for “measurement of the levels of anthropogenic pollutants and the assessment of their effects in all relevant component parts of the Arctic environment.” *Id.* at 1656. The implementation of the Strategy was to be “carried out through national legislation and in accordance with international law,” including UNCLOS. *Id.* at 1630. The Strategy called for regular meetings to monitor progress and continue cooperation. *Id.* at 1668.

84. Ottawa Declaration, *supra* note 82. The Joint Communique declared:

The Arctic Council is established as a high level forum to:

(a) provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic.

(b) oversee and coordinate the programs established

(c) adopt terms of reference for, and oversee and coordinate a sustainable development program.

(d) disseminate information, encourage education and promote interest in Arctic-related issues.

Id. at 1388.

representing constituencies that are made up of a majority of indigenous peoples.⁸⁵

The Arctic Council is a project-driven institution that has specific mandates in environmental study and the promulgation of uniform principles, guidelines, and best practices for Arctic exploration and development. The forum has recently begun attracting high ranking government officials to its meetings, including former United States Secretary of State Hillary Clinton in 2011. The Council is also putting down permanent institutions as a precursor to more effective management of the geopolitical, environmental, and economic risks and rewards. On January 21, 2013, the Council set up its first permanent secretariat in Tromsø, Norway.⁸⁶

The Council is coming into its own in other ways. Although originally conceived of as a forum for cooperation and discussion, binding law is now coming into force for the first time in areas such as search and rescue in the Arctic and oil spill cleanups.⁸⁷ The increasing strategic importance

85. These are the Arctic Athabaskan Council (AAC); Aleut International Association (AIA); Gwich'in Council International (GCI); Inuit Circumpolar Council (ICC); Russian Association of Indigenous Peoples of the North (RAIPON); and Saami Council (SC). *Permanent Participants*, ARCTIC COUNCIL, <http://www.arctic-council.org/index.php/en/about-us/permanentparticipants> (last visited, Jan. 25, 2013). The "category is open equally to Arctic organizations of Indigenous peoples with a majority of Arctic Indigenous constituency representing: a single Indigenous people resident in more than one Arctic State; or more than one Arctic Indigenous people resident in a single Arctic State." *Id.* The Permanent Participants also have their own "Indigenous Peoples Secretariat." *Id.* Further, twelve non-Arctic countries have been admitted as Permanent Observer States to the Arctic Council: France, Germany, The Netherlands, Poland, Spain, the United Kingdom, the People's Republic of China, Italy, Japan, the Republic of Korea, Singapore, and India. *Observers*, ARCTIC COUNCIL, <http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers> (last visited Oct. 23, 2013). Nine Intergovernmental and Inter-Parliamentary Organizations have been given observer status, as have eleven Non-Governmental Organizations. *Id.*

86. *Outsiders in the Arctic*, *supra* note 47. The new standing Secretariat of the Arctic Council will be located in Tromsø, Norway. Magnus Johannesson will be its first Director. Press Release, Arctic Council, Introduction to the Director of the Arctic Council Secretariat (Nov. 23, 2012) (available at www.arctic-council.org/index.php/en/about/general-news-archive/647-introduction-to-the-director-of-the-arctic-council-secretariat). Mr. Johannesson is currently the Secretary General for the Ministry for the Environment and Natural Resources in Iceland. *Id.* The hope is that the Secretariat will "enhance the work of the Arctic Council through the establishment of administrative capacity and by providing continuity, institutional memory, operational efficiency, enhanced communication and outreach, exchange of information with other relevant international organizations and to support activities of the Arctic Council." Arctic Council, *Terms of Reference of the Arctic Council Secretariat*, at 1, AC Doc. DMM02 (May 15, 2012).

87. The Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic, May 12, 2011, Canada Treaty Series 2013/6, available at <http://www.treaty-accord.gc.ca/details.aspx?id=105240>, is the first legally binding agreement negotiated under the auspices of the Arctic Council. See *Past Task Forces*, ARCTIC COUNCIL (Nov. 4, 2013), <http://www.arctic-council.org/index.php/en/about-us/working-groups/task-forces/811-past-task-forces>. The task force given the mission of negotiating the terms of the agreement was co-chaired by Russian and American representatives. *Id.* It "defines an area of the Arctic in which [each of the parties to the agreement] will

of the Arctic in economic, environmental, and geopolitical terms is demonstrated by the massive increase in attention paid to the Arctic Council by non-Arctic entities.⁸⁸ Countries as diverse as Singapore, China, Italy, and India have already submitted applications to be admitted under “Observer Status.”⁸⁹ Other entities such as the European Union, Greenpeace, and the International Association of Oil and Gas Producers have also applied for such status.⁹⁰

B. Multilateral and Bilateral Agreements

The next major category of regulatory and governance framework in the Arctic includes multilateral and bilateral agreements, conventions, and treaties. The first of these is The United Nations Convention on the Law of the Seas (UNCLOS),⁹¹ which establishes the global framework of rights and responsibilities on the world’s oceans; it applies with full force in the Arctic Ocean.⁹² UNCLOS is used in various contexts to address ongoing issues in the Arctic. For instance, it deals with ongoing territorial disputes.⁹³ UNCLOS also includes provisions to deal with environmental pollution concerns, such as Article 234, which gives coastal states the right to adopt and enforce non-discriminatory laws and regulations for the prevention of marine pollution from vessels in ice-covered areas of their exclusive economic zone.⁹⁴ The International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution From Ships 1973, as modified by the Protocol of 1978

have lead responsibility in organizing responses to search and rescue incidents.” *Id.* The Agreement “also commits Parties to provide appropriate assistance in the event of such an incident and to take other steps [to] address growing search and rescue needs in the Arctic region.” *Id.* In October 2011, Canada organized the first exercises among search and rescue agencies of the Arctic Council Members as a first step toward implementation of the Agreement. *Id.* The push behind the search and rescue agreements is primarily driven by the fact that such operations are too difficult and “expensive for countries to undertake on their own.” *Outsiders in the Arctic, supra* note 47. The binding agreement on oil spill cleanups is the second such binding treaty. *Id.*

88. *Id.*

89. *Id.*

90. *Id.*

91. UNCLOS, *supra* note 81.

92. Schofield, *supra* note 13, at 44 (noting that the four littoral Arctic countries apart from the United States have ratified the treaty, but that the United States considers the treaty to be customary international law).

93. There are several disputed boundaries between the Arctic nations. Particularly important are conflicting claims to the Lomonosov ridge. Russia, Canada, and Denmark all lay claim to this important geological feature. Astill, *supra* note 82.

94. Under UNCLOS, the Exclusive Economic Zone of a coastal state (EEZ) is that which extends up to 200 nautical miles from their shore. UNCLOS, *supra* note 81, art. 234.

(MARPOL 73/78), are other examples of such regimes that function within specific subject areas.⁹⁵

Governance mechanisms at bilateral and international levels differ markedly from the regional level governance of the Arctic Council. First, the various multilateral agreements listed above are binding law to those countries who have signed. Second, the agreements are not specifically designed for the Arctic region, taking into account the unique needs of the Arctic context. One criticism leveled against UNCLOS as a method of regulating in the Arctic is the fact that its scope is worldwide, not specifically focused on the regulatory and governance needs of the Arctic.⁹⁶ Because of this fact, some of the multilateral deficit is filled with various efforts through the International Maritime Organization (IMO); for instance, the IMO is in the process of drafting a mandatory Polar Code for publication in the near future.⁹⁷

C. National Jurisdictions

The Arctic region has particular importance at the domestic level of the Arctic countries, often going beyond economic concerns into national myths.⁹⁸ Russia, for instance, has seen the Arctic as a “source of . . . pride in the feats of their explorers, scientists and engineers” for over a hundred years.⁹⁹ Canada has been increasingly vocal about its security interests in

95. Importantly, shipping in the Arctic is currently highly regulated. At least four international treaties apply. Anderson, *supra* note 5, at 69. There are four principal IMO instruments which contain provisions applicable to commercial polar shipping, including the International Convention on Safety of Life at Sea (SOLAS), Nov. 1, 1974, 32 U.S.T. 47, 1184 U.N.T.S. 278, the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL), Feb. 17, 1978, 1340 U.N.T.S. 62, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), July 7, 1978, 1361 U.N.T.S. 190, and the International Convention on Maritime Search and Rescue, Apr. 27, 1979, T.I.A.S. No. 11093, 1405 U.N.T.S. 119. Anderson, *supra* note 5, at 69. These conventions include special provisions that may apply to ships operating in Polar Waters but are independent and not specifically drafted for either the ice conditions or the fragile environment of the Polar Regions. *Id.*

96. Some argue that UNCLOS has gaps in its authority and scope. Jeffers, *supra* note 35, at 958. Another recognition of the shortcomings of the Law of the Seas as a comprehensive governance framework is that it applies to states, and may not necessarily include within its concerns those of Arctic peoples unaffiliated with a particular state. Nordic Report, *supra* note 7, at 61.

97. Anderson, *supra* note 5, at 60. See also IMO, UPDATE ON WORK TO DEVELOP THE POLAR CODE (2011), available at <http://www.imo.org/MediaCentre/HotTopics/polar/Documents/polarcode/PPT2011.pdf>. The Polar Code mostly makes mandatory various provisions under MARPOL or SOLAS that have been recommended since their proposal in 2009.

98. Astill, *supra* note 82.

99. *Id.*

the region.¹⁰⁰ In the United States, the strategic importance of the Arctic region is explicitly acknowledged by American law.¹⁰¹

The above suggests that governance at the national level is important to the overall scheme of Arctic governance. In the United States, Arctic affairs are managed by several different agencies, although coordination is increasingly centralized because of the increasing importance of the region to U.S. interests.¹⁰² In the other Arctic nations, Arctic policy is coordinated at different levels.¹⁰³

One important aspect of national-level legislation is that under national law in most Arctic countries, an environmental impact assessment must be made prior to development, and a number of factors must be included when making that assessment.¹⁰⁴ These include inquiries into whether an ecosystem will be disturbed through construction of pipelines and roads,

100. *Id.*

101. American policy toward the Arctic region is contained in Directive on Arctic Region Policy, 2008 PUB. PAPERS 1545 (Jan. 9, 2009). This order demonstrates the importance of the Arctic to American foreign policy. It was laid out in the waning days of the Bush Administration. *Id.* The policy stance of the Obama administration is largely a continuation of that under Bush. On May 10, 2013, the President issued a National Strategy Document for the Arctic Region that delineates his Administration's official Arctic policy in strategic terms. EXEC. OFFICE OF THE PRESIDENT, NATIONAL STRATEGY FOR THE ARCTIC REGION (2013), available at http://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf. This document has many guiding principles that are compatible with the goals that this Note argues should inform Arctic governance going forward. For instance, "we will be guided by our central interests in the Arctic region, which include providing for the security of the United States; protecting the free flow of resources and commerce; protecting the environment; addressing the needs of indigenous communities; and enabling scientific research." *Id.* at 4. Other important Executive Branch materials relevant to American governance in the Arctic include: Exec. Order No. 12501, 50 Fed. Reg. 4191 (Jan. 28, 1985) ("Arctic Research"); Exec. Order No. 13547, 75 Fed. Reg. 43,023 (July 19, 2010) ("Stewardship of the Oceans, Our Coasts, and the Great Lakes"); Exec. Order No. 13580, 76 Fed. Reg. 41,989 (July 12, 2011) ("Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska"); and Exec. Order No. 13175, 65 Fed. Reg. 67249 (Nov. 6, 2000) ("Consultation and Coordination with Indian Tribal Governments"). Congressional statements of American policy toward the Arctic may be found in the Arctic Research and Policy Act of 1984, 15 U.S.C. § 4101 (2013).

102. The Arctic Policy Group, which is an interagency task force devoted to developing American policy in the Arctic, is chaired by Secretary of State John Kerry. This group controls U.S. interaction with the Arctic Council as well. HEATHER A. CONLEY ET AL., CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES, THE NEW FOREIGN POLICY FRONTIER: U.S. INTERESTS AND ACTORS IN THE REGION 2 (2013), available at http://csis.org/files/publication/130307_Conley_NewForeignPolFrontier_Web_0.pdf. Other important entities include the Interagency Arctic Research Policy Committee, the Interagency Policy Committee on the Arctic, and the National Ocean Council; at least 20 agencies are involved in the Arctic. *Id.*

103. In Canada, for example, authority over Arctic matters is split between federal control over issues of defense and international relations, and devolved power to provincial governments in matters such as health and education. See CANADIAN MINISTER OF INDIAN AFFAIRS & NORTHERN DEVELOPMENT, CANADA'S NORTHERN STRATEGY: OUR NORTH, OUR HERITAGE, OUR FUTURE (2009), available at <http://www.northernstrategy.gc.ca/cns/cns.pdf>.

104. EMERSON & LAHN, *supra* note 3, at 38.

the level of noise pollution from offshore drilling, a seismic survey activity, the possibility of additional maritime traffic, and whether there will be physical disturbance of the sea and seabed during drilling or through the break-up of sea ice.¹⁰⁵

III. THE GOALS OF A NEW GOVERNANCE FRAMEWORK

Any new governance mechanisms or improvements upon existing governance institutions must be based upon goals that are broadly supported and clearly articulated. These goals should maintain the Arctic as a model of productive multinational cooperation.¹⁰⁶ Further, the goals of future governance mechanisms may be informed by past examples of successful international agreements, such as those in the Antarctic.¹⁰⁷

As applied to the Arctic, the goals that this Note proposes are: economic development, environmental stewardship, political stability, and social cohesion.¹⁰⁸ These goals are interrelated, and can be synergistic.

For example, economic development that will continue to bring wealth and progress to the Arctic is needed, and the potential to connect remote areas of the world to the benefits of a globalizing world are obvious.¹⁰⁹ At the same time that Arctic energy production will benefit the region's

105. *Id.*

106. Arctic interaction is indeed so characterized presently. *Outsiders in the Arctic*, *supra* note 47 (“The Arctic Council epitomizes this spirit of increasing cooperation.”).

107. Indeed, some believe the Antarctic Treaty could be useful in the Arctic context. *See* Erika Lennon, *A Tale of Two Poles: A Comparative Look at the Legal Regimes in the Arctic and the Antarctic*, 8 SUSTAINABLE DEV. L. & POL'Y 32 (Spring 2008). Such proponents say that it “provides protective laws with binding force to guard the Antarctic’s environment and addresses issues common to both poles: research, national security concerns, sovereignty interest, and the environment.” *See* Malloy, *supra* note 79, at 495. But significant differences between that scenario and the Arctic context make direct parallels impractical. The Antarctic encompasses no land within the sovereign jurisdiction of any country. Lennon, *supra*, at 35. It is isolated, and significantly less accessible for development purposes. There are fewer and less important strategic concerns for countries because of its remote location. *Id.* Imposition, wholesale, of an Antarctic-type, mandatory regime to blanket the entirety of the geographical area and development issues is impracticable and undesirable. *Id.* at 36.

108. These are broad terms but, at this stage, necessarily so. The goals must be broad enough to attract widespread support and legitimacy, and also flexible enough when it comes to negotiating the specifics of their implementation. It is expected that negotiations can produce more specific, quantifiable, and attainable goals for the near term and long term.

109. The potential for bringing greater wealth to the region through economic development is demonstrated by the fact that “[i]n resource rich Arctic regions of the United States, Canada, and Russia the Gross regional product (GRP) per capita is considerably higher than in non-Arctic regions.” THE ECONOMY OF THE NORTH 2008 30 (Solveig Glomsrød et al., Statistics Norway eds., 2009). Indeed, in Russia, the petroleum industries have led to GRP per capita of as much as three times higher than the non-Arctic Regions: \$29,000 to \$9,000, respectively. *Id.* at 24.

economy, however, it is crucial that this occur in a way that is sensitive to an extremely fragile ecosystem.¹¹⁰

The Arctic is a delicate ecosystem that requires comprehensive planning, risk management, and forward thinking.¹¹¹ Therefore, environmental stewardship must be an essential and overarching goal of Arctic governance because otherwise many of the economic benefits of development may be undermined as political risk increases in the face of public backlash.¹¹²

Good governance should also focus on social goals such as giving all segments of Arctic societies the opportunity to participate in wealth-building activities, effectively including the voices of disparate groups, and increasing overall social cohesion.¹¹³ This is important because economic development necessarily involves change and some level of social dislocation.¹¹⁴ Thus there must be a conscious effort to keep more of the revenue from development in the area, with some of the money spent on social causes such as improving access and quality of health care, education, and job training.¹¹⁵

Finally, all of these goals require political stability. During the Cold War, the Arctic region bristled with military activity and was considered the front line in the West's defenses against militaristic communism.¹¹⁶ That scenario stands in stark contrast to today, where the Arctic is a region of relative peace and productive cooperation.¹¹⁷ Political stability will

110. A leading Canadian newspaper has stated it this way: "Development will bring benefits to the people who live there, and help them achieve economic self-sufficiency. However, due regard must be given to conservation of the Arctic environment. . . . Even a minor oil spill could have major environmental consequences." See Editorial, *Arctic Oil: Much Promise, But to Be Handled with Care*, GLOBE & MAIL (Feb. 10, 2013) available at <http://www.theglobeandmail.com/commentary/editorials/arctic-oil-much-promise-but-to-be-handled-with-care/article8395621/>.

111. EMERSON & LAHN, *supra* note 3, at 53.

112. *Id.* at 46. In fact, at least one major oil company, Total SA, has concluded that the risk of an oil spill in the area was "simply too high" and that such an event would "do too much damage to the image of the company." Guy Chazan, *Total Warns Against Oil Drilling in Arctic*, FIN. TIMES (Sept. 25, 2012), <http://www.ft.com/intl/cms/s/0/350be724-070a-11e2-92ef-00144feabdc0.html#axzz2LAqebEwa>. They will not drill for crude oil in Arctic waters. *Id.*

113. The Arctic Council's inclusion of numerous indigenous representatives, discussed *supra* Part II.A, is a good example of this principle.

114. See *supra* Part I.D for a discussion of recent social dislocation in the Arctic region.

115. See *infra* Part IV for specific proposals.

116. Smith, *supra* note 6.

117. Haakon Druun Hanssen, a Norwegian Admiral, has gone so far as to say that the Arctic is "probably the most stable area in the world." *Outsiders in the Arctic*, *supra* note 47. The Arctic is probably the one area where Russia interacts most productively with the Western world. Whereas stand-offs over Syria and Iran have pitted Western nations in opposition to Russia diplomatically and at the U.N. Security Council, Russia's interactions with the United States in particular have been cordial and warm in the Arctic. Astill, *supra* note 82. At a recent conference in Singapore organized by

allow for economic growth, cooperation regarding environmental challenges, and collaborative interaction between indigenous groups and Arctic governments.¹¹⁸ Thus, a proposed governance framework must have geopolitical stability as one of its goals.

IV. PROPOSED IMPROVEMENTS TO THE CURRENT GOVERNANCE FRAMEWORK

Improvements in the current framework are possible at every level of Arctic governance.¹¹⁹ At the pan-Arctic level, the Arctic Council should lay more permanent and substantial institutional foundations. Expanding the purview of the permanent secretariat will help.¹²⁰ The secretariat functions as the executive power within the organization, giving it direction and accountability in the implementation of the policies negotiated by the Council's member states. A more powerful secretariat can facilitate those negotiations and forge ahead with implementation in the aftermath. The Council should also expand the scope of binding law issued under its authority.¹²¹ Finally, continuing to attract higher-ranking representatives from Arctic nations will continue to help.¹²²

The Economist, Russia's ambassador for Arctic affairs, Anton Vasiliev said that "[t]he Arctic is a bit special for civility You cannot survive alone in the Arctic: this is perhaps true for countries as well as individuals." *Id.*

118. Most believe this will indeed be the case, because of the overwhelming incentive for Arctic countries to concentrate on developing the resources they have, as opposed to political battles over contested locations. *Id.*

119. Indeed, comprehensive attention to all levels of governance in the Arctic is required for effective pursuit of the goals laid out because of the unique nature of the Arctic. "A long-term and comprehensive regulatory approach—incorporating national governments, bodies such as the Arctic Council, and industry bodies—is necessary for effective risk management, mandating cross-Arctic best practices and defining public policy priorities on what constitutes appropriate development." EMERSON & LAHN, *supra* note 3, at 9. This is because even "more acutely than elsewhere in the world, economic development and environmental sustainability in the Arctic are co-dependent." *Id.*

The reason for the multi-layered approach is that "the Arctic is not—nor is it likely to become—a truly single regulatory space." *Id.* To a large extent, "Arctic states and other interested parties are increasingly forging common approaches to shared challenges" but sovereignty ultimately lies in multiple areas. *Id.*

120. See *supra* note 86 for a description of the current responsibilities, setup, and goals of the new Secretariat.

121. The Arctic Council should continue to strengthen its governance role by issuing legally binding obligations on its members. The benefits of regionally concentrating on the Arctic, combined with the widespread participation of various Arctic stakeholders, makes the Arctic Council the appropriate body for promulgating legally binding Arctic rules. One example of a promising binding agreements from the Arctic Council relates to Arctic marine oil pollution preparedness and response. *Outsiders in the Arctic*, *supra* note 47.

122. In addition to Hillary Clinton, Ken Salazar, then Secretary of the Interior, and Senator Lisa Murkowski (Republican from Alaska) attended the Nuuk meeting. Arctic Council, Nuuk Declaration

The Arctic Council should also increase the number of observer-status entities. China and Singapore, for example, have already applied for admission¹²³ and should be admitted.¹²⁴ Other nations, particularly those involved in natural resource development, should have a seat at the table and be required to operate within the agreements forged at this level.¹²⁵ As shipping increases in the Arctic Region, major players in that industry should operate within the purview of agreements reached at an Arctic-wide level.¹²⁶

Inclusion of more entities within the Arctic Council is also important because of the unique role that global climate change plays in the Arctic and the unique impact that Arctic environmental changes have in a global context.¹²⁷ As changes in the Arctic environment affect the global environment, the world should have a more direct say in what happens in the Arctic.¹²⁸ Such inclusion would have two main benefits. First, the expertise of outside entities can contribute to productive responses to environmental challenges. Second, a more widespread consensus on activities and governance in the Arctic will serve to increase the legitimacy of actions taken in the Arctic. Thus the membership of the Arctic Council should be expanded.¹²⁹

In addition to expanding the membership of the Arctic Council, constituent countries should enhance the ability of the Council to issue binding law. One proposal that the Arctic Council should make is to call upon its members to institute an appropriate price on carbon emissions, through a tax or market based system.¹³⁰ This system would persuade

at 10 (May 12, 2011), available at <http://www.arctic-council.org/index.php/en/document-archive/category/5-declarations?download=259:nuuk-declaration-2011>.

123. *Outsiders in the Arctic*, *supra* note 47.

124. China should be admitted because of its size and importance in world affairs. Singapore should be admitted because it has important interests at stake, including its status as a global shipping nation and because it is an island nation particularly vulnerable to rises in global sea levels as a result of climate change.

125. For instance, China is becoming a massive investor in Greenland. *Outsiders in the Arctic*, *supra* note 47. If recent proposed investments are approved in Denmark, 5,000 Chinese workers could be coming to Nuuk, its capital. *Id.* The current population of Nuuk is only 15,000. *Id.*

126. Singapore, for instance, is interested in joining because the increase in Arctic shipping directly threatens its status as a global shipping hub. *Id.*

127. *See supra* Part I.B.1.

128. Crump, *supra* note 7.

129. Of course, as an institution becomes more widely representative more parties are included, and therefore the institution is subject to a corresponding decrease in effectiveness of action. Hopefully, this problem can, to some extent, be dealt with by increasing the power and purview of the Arctic Council's secretariat. *See supra* note 86 and accompanying text.

130. Actually, this policy would also be appropriate for worldwide implementation. But the politics of a global carbon tax are complex, and the chances of such a tax are not good. Therefore, it makes sense for the Arctic Council to push forward with such a scheme, because they have arguably

polluters to develop and adopt cleaner technologies, which would then be more competitive, thus furthering the goal of economic development and environmental stewardship.¹³¹

Robust bilateral and multilateral governance mechanisms are also vital to improved Arctic governance. Such agreements can take account of specific areas of governance, such as littoral and shipping concerns. Governance at this level can deal with one of the major problems with shipping in the Arctic: pollution and liability regimes. “The current international system for compensation for pollution damage caused by ship-source pollution is fragmented and limited.”¹³²

A similar multilateral agreement for the resource development industries is needed. The unique nature of the Arctic environment means that the development of these resources needs to take place in an orderly and managed way with incentives for excellent safety. Thus a desirable treaty might include requiring companies operating in the Arctic to post a bond where they are operating. Such a scheme exists in Greenland, where companies must either post a \$2 billion bond, or have \$10 billion in equity to qualify for exploration licenses.¹³³ In addition to this bond, which should be posted during licensing, transparent worst-case scenario plans should be required.¹³⁴ Although this prescription could be implemented at the national level, it may make sense to impose the requirement on all Arctic countries to avoid economically distorting disparities and incentives.

Thus pan-Arctic and multilateral governance mechanisms are important and needed institutions in the Arctic. But it must be remembered that in many respects, current law is still focused primarily on the

the most at stake in reducing worldwide carbon emissions. James Astill, *Cold Comfort*, *ECONOMIST* (June 16, 2012), <http://www.economist.com/node/21556805>.

131. *Id.*

132. Anderson, *supra* note 5, at 73–74 (citing ARTIC COUNCIL, *ARTIC MARINE SHIPPING ASSESSMENT 2009 REPORT* 65). It should be further recognized that each Arctic state has its own system of assessing compensation for environmental damage; conversely, there is a single, unified system for the Antarctic. This should change. *See supra* note 107 and accompanying text.

133. EMERSON & LAHN, *supra* note 3, at 41. This should be enforced at the licensing stage so governments can assure themselves that companies have the financial resources to clean up any mess.

134. Activities related to oil and gas in the Arctic Ocean must be prudent. This would require high environmental standards adapted to the sensitivity of the Arctic, including ecosystem based management; rigorous environmental and strategic impact assessment; effective prevention, preparedness, and response to accidents, including clean-up of pollution incidents; and advanced monitoring and research. *See* Editorial, *Arctic Oil*, *supra* note 109. The story of Royal Dutch Shell is a telling example of the high environmental stakes in the Arctic. One of the most technologically advanced companies operating in the Arctic north, Shell has run simulations of the interactions of ice and oil in the event of a spill, in preparation for future contingencies. Astill, *supra* note 45. The results were not at all encouraging. *Id.*

individual sovereignty of the nations in the region.¹³⁵ Regulatory agencies within each country should operate transparently and work to harmonize their rules and regulations, or at least pursue rules that are compatible. One example of an area for harmonization is domestic liability regimes.¹³⁶ Currently, caps on economic damages are too low, functioning as a risk transfer to the public sector to encourage investment.¹³⁷ These caps should be lifted, in order to promote heightened attention to safety concerns in the Arctic environment, and unified, to prevent jurisdiction hopping.

Finally, institutionalizing modes of communications between respective regulatory agencies would do a good deal to ensure that these bodies are not acting at cross-purposes, and that best practices are disseminated and followed.¹³⁸

CONCLUSION

The Arctic region is changing rapidly. It is changing in ways that are both positive and challenging—environmentally, economically, and socially. In order to tackle the issues currently confronting the Arctic, governance recommendations like those stated herein should be implemented. Based on the goals of environmental protection, economic growth, widespread participation, and social cohesion, these recommendations recognize the important role that governance mechanisms can play in forging a prosperous and clean Arctic.

Of course, the topic of Arctic governance is a complex and detailed one. The ideas in this Note will hopefully serve as a useful foundation for further discussions of this pressing topic of worldwide concern.

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135. EMERSON & LAHN, *supra* note 3, at 34.

136. The biggest divide in liability regimes is between so-called liability (with fault) and “absolute liability” (no fault). Canada limits absolute liability to \$30 million, the United States to \$75 million, and the United Kingdom to \$250 million. At-fault accidents are limited to economic loss and clean-up costs. Paul McLeod, *Oil Spill Protection Called Good*, CHRON. HERALD (Feb. 7, 2013), <http://thechronicleherald.ca/novascotia/661471-oil-spill-protection-called-good>. Liability should be harmonized as much as possible to eliminate misaligned incentives to locate operations in certain jurisdictions.

137. EMERSON & LAHN, *supra* note 3, at 41.

138. To some extent, this already happens at the Arctic Council. It should happen via direct communications between relevant authorities in respective countries.

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