

RESOURCE DEVELOPMENT AND ARCTIC GOVERNANCE:

AN AMERICAN PERSPECTIVE

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Over the past two decades, global demand for natural resources has steadily risen, propelled particularly by the rapid development of China and India, as well as the emergence of those nations as major raw-material importers. There have, to be sure, been cyclical fluctuations in both consumption and commodity prices, involving periodic declines during and after financial crises, such as those of 1997-1998 and 2008-2009. Yet the long-term secular trend has clearly been toward tighter global markets.

Amidst this general pattern of resource supply uncertainty and rising prices, the Arctic regions of the globe—including both land and sea areas north of the Arctic Circle—stand out among the few remaining untapped resource storehouses. Recent estimates by the U.S. Department of Energy suggest that about 30 percent of all the undiscovered natural-gas reserves on earth—nearly two thirds the

proved gas reserves of the entire Middle East-- lie in the Arctic, which comprises only about 6 percent of the Earth's surface area.¹ As much as 13 percent of undiscovered oil reserves on earth appear to lie in the Arctic as well. Areas close to the Arctic, particularly Canada's Northwest Territories and the Athabasca Basin of northern Saskatchewan, are also important sources of uranium. Indeed, drawing on this enormous northern potential, Canada is the largest producer of uranium in the world.

For many years, little thought was given in the major nations of the world to exploiting this vast, untapped storehouse of Arctic energy resources. Yet the supply- demand equation for these resources is quietly beginning to change, for a complex yet fateful variety of climactic, technological, economic, and geopolitical reasons. This paper briefly reviews why Arctic resource exploitation is becoming an important subject of commercial and policy consideration; as well as the known distribution of Arctic energy resources across various national jurisdictions. It then offers suggestions from an American perspective as to how public policy should regard Arctic resource development, with special consideration of ways in which the United States, Japan, and Canada—the three most powerful

¹ The Arctic is traditionally defined as the Northern hemisphere region located north of the Arctic Circle—the circle of latitude where sunlight is uniquely present or absent for 24 continuous hours on the summer and winter solstices, respectively. The Arctic Circle spans the globe at 66 degrees 34 minutes north latitude.

democratic nations of the North Pacific—might cooperate in this important endeavor.

The Changing Arctic Energy Resource Equation

Driving the changing political economy of Arctic resource development is the historic transformation of the global growth equation over the past three decades. China's Four Modernizations, beginning in late 1978, and India's sweeping economic reforms, beginning in 1991, have begun to bring these two massive nations decisively into the world economy. Together they hold close to half of the world's entire population, with enormous growth potential that is just beginning to be realized. Both are historically poor, energy-inefficient, and heavily reliant on coal as an energy source. Their growth, as a consequence, generates both rapidly rising energy demand, and a rapid increase in CO₂ emissions, which in turn seriously aggravates global warming.

The climatic effect of global warming is felt most profoundly, of course, in the Arctic. The ice cover is much thinner there than in the Antarctic, and thus more vulnerable to rising temperatures. Its steady disappearance accelerates global warming still further. Climate change, for all its perversity in other parts of the world, and even in the Arctic with respect to wildlife habitat issues, is

nevertheless enhancing prospects for a new era of resource exploitation in the Arctic, with all the opportunities and environmental dangers which that implies.

Resource extraction costs in the Arctic, to be sure, remain high, even as climate constraints subside, for several reasons. Weather conditions remain difficult relative to other parts of the world, first of all, even if they are growing marginally easier in the Arctic than they have been. The mean monthly temperature at Prudhoe Bay on Alaska's North Slope in February, for example, remains -20 degrees Fahrenheit, and the monthly average remains below freezing from November through April. In this environment, specialized equipment is naturally required to cope with special hazards, such as blizzards and collisions with pack ice. High salaries are required as compensation for difficult working conditions. And new infrastructure—roads, airports, pipelines, and in many cases off-shore drilling platforms-- is often needed to assure that resources can get predictably to market.

Rising energy prices—provoked, like climate change, by rapidly rising energy demand in large, growing, energy-importing nations like China and India—do to some extent facilitate Arctic development. So do technical advances, especially with regard to off-shore drilling. Advanced use of robotics and

sophisticated communications systems make resource extraction far beneath the sea ever more technically feasible, as has become increasingly evident in the Gulf of Mexico over the past decade.

The prospective global demand for Arctic resources has thus risen substantially in recent years, spurred by Asian development, even as the economic and technical prospects for supply from the Arctic have also improved. Yet sobering obstacles to extraction naturally remain. As the tragic case of the 2010 BP oil spill dramatically suggests, the danger of serious environmental pollution is significant among them. And the dangers are even greater in the Arctic than elsewhere in the world.

As Arctic waters are much colder than those of the Gulf of Mexico, the Persian Gulf, or the South China Sea, and the warm seasons much shorter, the oil exuded through a spill would likely take much longer to dissipate. The potential cleanup periods during any given production season would also be much shorter.² Many specialists also emphasize the technical difficulties—indeed, the near impossibility, in the view of many—of removing oil spills trapped under Arctic ice. And as the operational locations of off-shore facilities in such Arctic domains as

² Since ice packs make energy operations impossible for ten months of the year, cleanup of a even a moderate oil spill could take as much as three seasons, in the view of many environmental specialists. See “Science Lags on Saving the Arctic from Oil Spills”, Science, Volume 325, September 11, 2009, p. 13.

the Beaufort Sea would likely be more remote from human habitation than is typical further south. The logistical difficulties in mobilizing a rapid response to a spill could also be more pronounced. The Arctic, after all, has fewer locations from which to launch recovery missions, in the event of environmental disaster, than areas further south.

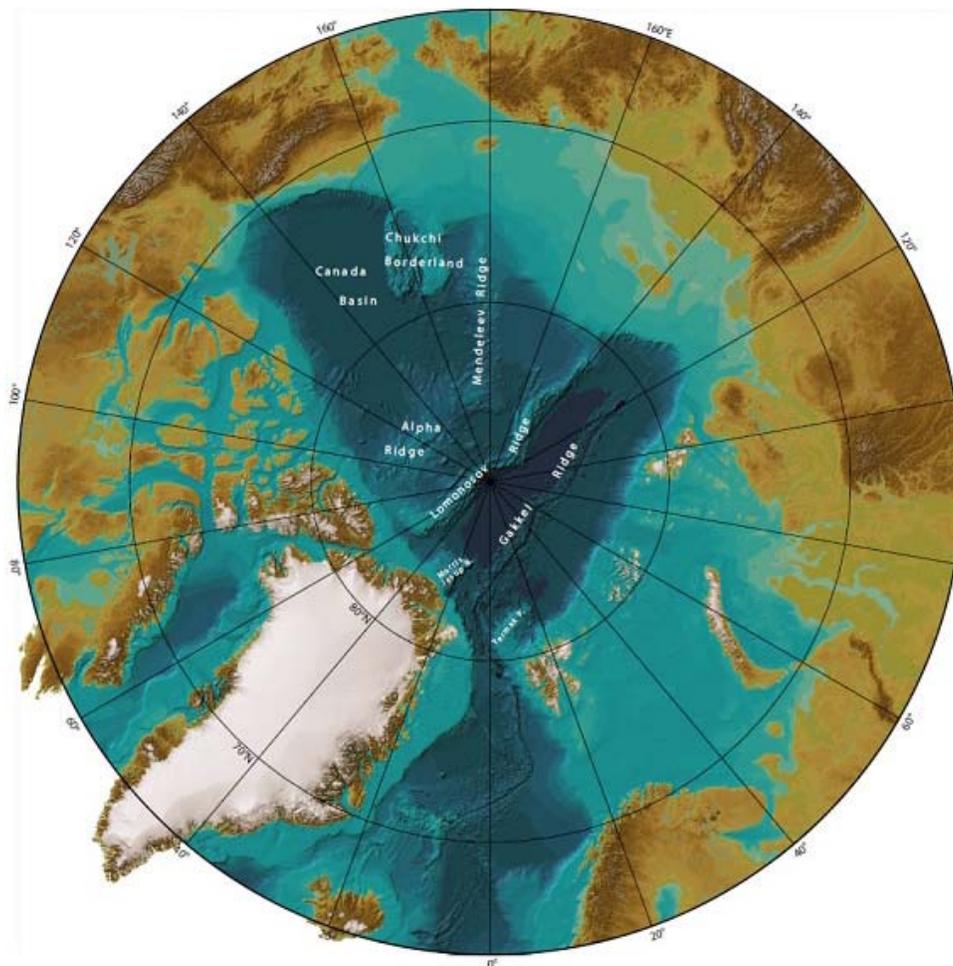
A second enduring obstacle to Arctic resource development—even in the high-cost energy world that Asian development is inspiring—is inadequate infrastructure. The problem is especially acute with respect to medium and smaller-scale fields. Huge fields—like Alaska’s North Slope, or Russia’s massive Shtokman gas field in the Barents Sea—are required to justify the huge investment in pipelines, roads, offshore extraction facilities, and so on that are required to exploit resources in the Far North. It took the massive capacity of the Prudhoe Bay field—13.6 billion barrels of recoverable oil—for example, to make the Alyeska Oil Pipeline to the south commercially viable.³ The capital outlays required are massive, and the political-economic challenge of providing them is seriously compounded by price and geopolitical uncertainties.

³ Philip Budzik, “Arctic Oil and Natural Gas Potential”, at: <http://pubs.ursg.gov>. p. 3.

The Distribution of Arctic Resources and its Geopolitical Implications

To properly evaluate future prospects for Arctic energy resource extraction, in preparation for considering policy implications, it is important to consider Arctic geography, and how Arctic energy resources appear to be distributed, on a cross-national basis. While the Arctic is roughly the size of the African continent, most of that area is oceanic. Only one-third of the Arctic is occupied by land. Another one third of the region consists of offshore continental shelves located in less than 500 meters (1,640 feet) of water. The rest of the Arctic is in Arctic Ocean waters deeper than 500 meters. Jurisdictionally, the Arctic contains portions of eight countries—Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden, and the United States, as suggested in Figure I. Finland and Sweden do not border the Arctic Ocean, and are the only Arctic nations without jurisdictional claims in the Arctic Ocean and adjacent seas.

FIGURE I: THE ARCTIC OCEAN AND ITS PERIPHERY



Source: National Geophysical Data Center, Marine Geology and Geophysics Division, website: <http://www.ngdc.noaa.gov/mgg/bathymetry/arctic/arctic.html>

Since two thirds of the Arctic is sea rather than land, and fully one third consists of offshore continental shelves located in less than 500 meters of water, Arctic resource-extraction issues are deeply related not only to energy prices, and technology for extraction, but also to the prevailing international legal regime, its credibility, and its provisions regarding property rights. These parameters remain highly ambiguous, both due to inadequate exploration and mapping, and also due to the failure of some key nations—notably the United States—to ratify the United Nations Convention on the Law of the Sea (UNCLOS). We will return to this issue in the policy discussion, but its importance, stemming directly from Arctic geography, should be noted here.

Under UNCLOS, signatory nations enjoy a 200-mile exclusive economic zone (EEZ). In the case of the Arctic, this arrangement accords substantial advantages to Russia, which has the longest Arctic coastline. Beyond that, under Article 76, UNCLOS also provides that nations may submit claims to submerged lands if they can demonstrate that their continental margin extends beyond the 200-mile limit. Mapping of geological features extending from the continent out to sea thus becomes geopolitically important, and potentially controversial, as with respect

to the undersea Lomonosov Ridge, in the midst of the Arctic Ocean extending from Russia toward Canada, to which Moscow has laid claim under UNCLOS.⁴

The geography of the Arctic itself could thus inspire increasingly serious geopolitical conflict as global warming proceeds, absent a clearer and more authoritative international regime. The national distribution of Arctic resources also has fateful international implications, which could easily lead either to serious conflict or fruitful cooperation, depending on the geopolitical relationships of the key Arctic nations. In particular, there is a skewed distribution of oil and natural gas between Russia, on the one hand, and Canada/the United States on the other. This distribution could either complicate or facilitate development on both sides.

Broadly speaking, the Canada/US side of the Arctic is believed to have the largest proportion of the undiscovered oil—around 65 percent of the Arctic total—but a much smaller share of the natural gas. The Russians, conversely, have the lion's share of the gas—concentrated in large fields that are technically amenable to exploitation, if financing were available. Large Russian fields in the Arctic are quite numerous —indeed, 43 of the 61 largest Arctic gas and oil fields

⁴ On these claims, see Ronald O'Rourke, "Changes in the Arctic: Background and Issues for Congress", CRS Report for Congress 7-5700, March 30, 2010, p. 19.

are in Russia. Exploitation of such fields entails considerable infrastructure costs—particularly high in the natural-gas area, since the remoteness of the fields mandates either long pipelines or liquefaction. Exploitation also requires specialized technology, which is far more developed in the West than in Russia itself.

There is thus potentially a bargain to be struck—particularly relevant in policy terms, given the recent Obama Administration “reset” with Russia. Canada and the US have oil, which their private sectors should be able to exploit on a market basis, when prices are right, subject to environmental constraints. Russia, however, has the bulk of the gas, which is attractive in both energy-efficiency and environmental terms. Exploitation of that gas, however, appears to require technology and capital which Russia itself does not at present have. How this bargain might be struck, how it could be related to the establishment of a clear international Arctic regime, and what the geopolitical implications of such a bargain might be, are questions which we re-visit in the policy section of the paper.

Priority Concerns of the United States

“The United States”, as National Security Presidential Directive NSPD-66 pointed out in January, 2009, “is an Arctic nation, with varied and compelling interests in that region.”⁵ Among the specific interests that NSPD-66 enumerated are: (1) National security interests, including missile defense and early warning; deployment of sea and air systems for strategic sealift; strategic deterrence; maritime presence; and ensuring freedom of navigation and overflight; (2) Homeland-security interests in preventing terrorist attacks; (3) Freedom of the seas; and (4) Economic concerns, including energy resource development in an environmentally sound manner. NSPD-66 emphasizes that energy development throughout the Arctic needs to be undertaken in “an environmentally sound manner, taking into account the interests of indigenous and local communities, as well as open and transparent market principles.”⁶ The document also recognizes the importance of working with a variety of international bodies, including the Arctic Council, the International Regulators Forum, and the International Standards Organization, to achieve these ends.

⁵ National Security Presidential Directive 66, issued January 9, 2009, at: <http://www.fas.org/irp/offdocs/nspd/nspd-66.htm>.

⁶⁶ Ibid.

The Obama Administration has added significantly to the enumeration of core American Arctic priorities embodied in NSPD-66, with a special emphasis on multilateral processes for resolving outstanding issues. Secretary of State Hillary Clinton has on several occasions emphasized both the importance of a high level of American engagement in negotiating emerging disputes over the Arctic, and also the importance of cooperative action, including American ratification of UNCLOS.⁷ She personally announced, together with Canadian Foreign Minister Lawrence Cannon, the US-Canadian joint survey of the western Arctic Ocean continental shelf, where the two nations have divergent territorial claims, to be undertaken in late 2010.⁸ Deputy Secretary James Steinberg has also emphasized the importance of multilateralism through the Arctic Council, to address a range of functional problems, in areas such as transport, tourism, environment; search and rescue, and resource exploitation.

Emerging Policy Issues

Twenty-first century Arctic resource development, as we have seen, involves fateful issues of trans-national conflict and cooperation, involving some of the most powerful nations on earth. Long-abstract questions are intruding into

⁷ The Gazette (Montreal), April 7, 2009.

⁸ *Ibid.*

the real world, driven by global warming and the rising energy prices flowing from Asian growth, as well as increasingly sophisticated offshore-drilling technology. Their resolution necessarily involves trans-national collective action, with both a public and a private dimension, of an increasingly intricate variety.

One key set of policy issues, relating to Arctic resource development, concerns more accurate mapping, especially with regard to the configuration of the continental shelf, which under UNCLOS establishes the basis for claims to exclusive resource exploitation zones. The US and Canada are fortunately engaged in a joint collaboration to map the seabed of the Beaufort Sea, where they have some conflicting claims.⁹ This survey, as noted above, is to be undertaken during the fall of 2010, and represents an important, future-oriented step. As the Arctic seas become more open, mapping will grow both more possible, and also more necessary.

A second policy imperative, mandating public-private as well as trans-national cooperation, is for better forecasting. Global warming appears to be producing a more volatile Arctic climate—some predict “Arctic cousins” of the increasingly frequent and severe tropical hurricanes of recent years. Weather-

⁹ Currently 11,000 square kilometers of the Beaufort Sea continental shelf, north of Alaska and the Northeast Territories, is in dispute, with Canada compelled, under UNCLOS, to report its claims by 2013.

service cooperation and joint research, as well as better cooperative infrastructure for responding to inevitable Arctic accidents and oil spills, are a coming imperative.

Cooperative studies of the unique Arctic environment are also in order. That complex environment, involving inter-connections among fish, birds, marine mammals, and the ocean itself, has never been well-enough known. And, to make matters worse, it is rapidly changing, under the impact of global warming. The world simply needs to understand Arctic ecosystems better, and that can best be done through cooperative research, drawing on a diverse yet coherent empirical base.

New regulatory initiatives are also in order, to establish stable parameters for interaction, as Arctic transactions begin to multiply. Most importantly, from an internationalist American perspective, the U.S. Senate should ratify UNCLOS. Doing so would be invaluable in creating the legal predictability that corporations need to engage in resource extraction, and also in inhibiting inter-state resource conflict, which is otherwise an uncomfortably rising prospect.¹⁰

¹⁰ See, for example, Michael Klare. Resource Wars: The New Landscape of Global Conflict. New York: Henry Holt and Company, 2001.

The Obama Administration has recently taken important new regulatory initiatives in its portion of the Arctic, to address common transnational problems now emerging. One concrete initiative has been to institute a moratorium on fishing in Arctic waters north of Alaska, into which increasingly endangered species, such as crab, Arctic cod, Pollock, and salmon routinely migrate. Such a moratorium appears to be necessary to support long-term sustainable fishing, and should be multilateralized. The Administration in March, 2010 announced support for some drilling on existing Arctic leases off the Alaskan coast, but since the BP oil spill has cancelled planned Chukchi and Beaufort lease sales, so that environmental and oil-spill risks can be studied further. It has also banned drilling near Bristol Bay, one of Alaska's richest fishing grounds, as desired by fishermen and environmentalists.

The Rationale for Trilateral Cooperation

Broad multilateralism, epitomized by UNCLOS, clearly provides an important general framework for addressing Arctic issues. Yet there is an increasingly powerful rationale also for mini-lateralism, of the sort that the US-Japan-Canada partnership can provide. In addressing many of the foregoing tasks, Japan, Canada, and the United States, as a trilateral unit, bring unusually

complementary skills and regional expertise to the table. As allied democratic nations, they also share national-security goals and an underlying belief in free markets and the rule of law that bind them to one another, as the three largest market economies in the North Pacific.

Japan is not an Arctic power in geographical terms, but it has important resource and security-related interests that make involvement on Arctic issues important. These are intensified by the deepening interest of China and other Pacific nations, apart from the U.S. and Canada, in the Arctic. The United States, as a trans-Pacific ally of Japan with important shared interests, welcomes this involvement.

Japan obtains only 15 percent of its total energy supply from domestic sources, as compared to 73 percent for the United States, and an even higher ratio for Canada. It also relies heavily on fish imports from northern seas bordering on the Arctic, so has a common stake with the US and Canada in the responsible stewardship of those resources, which have recently been threatened by aggressive commercial fishing from outside the region. Japan will likely also find its trade with Europe, in particular, increasingly linked to Arctic transport routes such as the Northwest Passage, mainly through Canadian and secondarily

U.S. waters, in future. Both Japan and the global community can benefit greatly from Japanese engagement on Arctic issues, through such mechanisms as its observer role on the Arctic Council.

In Conclusion

Traditionally the Arctic has been a remote, frigid wasteland, although a region invested with strategic importance in Cold War days as a tense and ambiguous buffer between the Communist and democratic worlds. Global warming, for all its evils, is rapidly transforming this region into a more dynamic part of the world in economic terms. The climactic changes, however, are also sowing the seeds for future geopolitical conflict, the configurations of which remain inadequately conceptualized.

This paper began by surveying the distinctive geographic profile of the Arctic, and the geopolitical implications thereof. It noted that two thirds of the region is covered by water, including one third that consists of continental shelf with a sea-depth of less than 500 meters. The region also has a skewed internal division of natural resources, with Canada and the US together holding around 65 percent of the area's undiscovered oil, but a much smaller share of natural gas. Russia, conversely, has by far the largest prospective gas reserves. They are

concentrated in large fields that are technically possible to exploit, but where massive capital requirements and geopolitical uncertainties inhibit their development.

To address the emerging challenges of Arctic affairs, this paper stresses multilateral cooperation, beginning with US ratification of UNCLOS, and the increasing involvement of Japan in Arctic affairs, especially those relating to resource extraction. It also, however, emphasizes the important advantages of mini-lateralism, especially the sort that the US, Japan, and Canada, as allied democratic, and market-oriented nations, can provide. These countries are the largest democracies of the North Pacific, highly complementary in the resource area, with an immense capacity for cooperation that needs to be more systematically exploited in coming years.