

The Arctic Climate Change and Security Policy Conference

FINAL REPORT AND FINDINGS

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CARNEGIE ENDOWMENT

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UNIVERSITY OF THE ARCTIC
Institute for Applied Circumpolar Policy



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* This conference report summarizes the integrated discussions that emerged from four focused panels, but its findings and policy recommendations are the sole responsibility of the authors.

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Executive Summary and Key Findings

The pace of change in the Arctic due to global climate conditions demands that greater attention be focused on the region, its needs and the issues surrounding its development over the near and intermediate term. The implications for U.S. citizens in the region and important U.S. security, economic, environmental, and political interests as a result of changes in the Arctic are profound.

The present global financial crisis has relieved some of the mounting pressure for Arctic economic and resource development. During this hiatus, the U.S. should seize the opportunity to address critical needs in and around the Arctic region to ensure a sustainable future for the Arctic environment and its people.

- As a first priority, the U.S. should ratify the United Nations Convention on the Law of the Sea (UNCLOS).
- The President should create a sub-cabinet commission on global warming headed by the Vice President that elevates the importance of Arctic issues related to climate change and its effect on people, ecosystems, and economies, and ensures interagency coordination and cross-disciplinary engagement.
- The U.S. should support and promote a stronger role for the Arctic Council as the principal international forum for addressing Arctic issues. New measures should include support for a permanent secretariat for the Council, along with adequate funding to support effective program coordination, scientific research priorities, and attention to the increasing international interest in the Arctic, particularly by China, the EU, and Japan.
- The U.S. should support Arctic sub-regional forums, such as the Northern Forum, where issues and research of common concern can effectively be addressed on a regional basis.

- Arctic environmental security should receive priority attention as the key regional security issue. The region's most pressing need is the development of an effective mechanism and protocol for responding to environmental disasters, and contingency planning to ensure regional and international cooperation in response to environmental or natural calamities. Fishing, tourism, and energy development require special attention.

Note: Since this conference was held, there have been significant new developments such as the Presidential Directive on Arctic Regional Policy, a new Russian Federation Arctic policy statement, new scientific evidence regarding the role of black carbon/carbon soot in the Arctic, and the first ever joint meeting of the Arctic Council and the Antarctic Treaty partners. These events do not change the tenor or fundamental findings and recommendations of this conference report. The Presidential Directive on Arctic Regional Policy (January 9, 2009) includes recommendations consistent with the conclusions set forth by our conference experts. We must now ensure that the Directive's calls for change are implemented. We are currently preparing a study that we hope will accelerate that process.

KEY FINDINGS

- A. As a major Arctic power, the U.S. has responsibility for stewardship and protection of vital environmental, security, economic, and political interests in the Arctic region.
- B. The failure of the U.S. to ratify UNCLOS weakens the ability of all institutions in the international system, as well as the American government, to advance U.S. interests in developing stronger regional governance.
- C. Global warming is accelerating the pace at which climate change is affecting the Arctic region as well as climatic and environmental conditions in the U.S.
- D. While evidence that global warming is affecting both the Arctic region and the world's environment is incontrovertible, the scientific basis for understanding these phenomena and the information available for making policy decisions remains inadequate.
- E. In order to define issues for decision and set priorities for action, governments should demand accelerated scientific study of issues critical to informed policy making and should be willing to fund needed research. The scientific community must work in closer coordination with policy and political decision makers to reach a better mutual appreciation and understanding of each other's needs and processes.
- F. The present global economic slowdown provides a much-needed hiatus in Arctic commercial pressures during which important Arctic powers could work on developing coordinated rules and best practices by which to govern the development of Arctic resources.
- G. While global warming is expanding the opportunities available for Arctic resource extraction, the pace of development will be governed more by economic considerations, commodity pricing in particular, than by possible greater access due to climate change. Moreover, since ice cover will remain for much of the year, even shipping will remain difficult and treacherous.
- H. Global warming will significantly affect regional economies, their fish and wildlife resources, and the livelihood of peoples living in the Arctic. These consequences already have begun to affect the lives of indigenous peoples engaged in subsistence economies and large-scale Alaskan development projects.
- I. Despite alarmist predictions of a new "great game," the prospect for a significant confrontation among Arctic powers over resources, boundaries, or claims is now low. The United Nations Convention on the Law of

the Sea (UNCLOS) provides a significant body of rules and precedent to adjudicate the majority of disagreements. Most regions with resources at stake are governed under the rules of the 200-mile economic zone. Where there are disputed regimes or boundaries, these remain subject to accommodation by the parties involved, in particular the U.S. and Canada.

- J. The key security issue confronting the Arctic powers will be environmental and political. Rules controlling shipping, emissions, pollution, and land use are weak, and enforcement mechanisms are inadequate. The need for large-scale ecosystem-based management regimes to protect the integrity of the Arctic Ocean is receiving increasing attention, including proposals for an Arctic Treaty or Park in order to manage and protect the Arctic Ocean as an international commons.
- K. The Arctic does not lend itself to a new treaty regime similar to that which has governed Antarctica (Treaty System). However, there is a clear need for more robust institutional governance to address issues that are becoming more acute as environmental change accelerates and regional development pressures rise.
- L. The rights and lifestyle of indigenous peoples demand continuous attention from governments, and the voice of Native peoples must be central to decisions on management of Arctic issues and claims.
- M. A key issue in Arctic governance is finding the appropriate balance between national interests and actions and the interests and role of the international community.
- N. Currently the institution most broadly supported by the Arctic states is the Arctic Council, which addresses the range of governance issues arising in the region. It works on the basis of consensus and has no role on security issues. However, the Council needs stronger support and backing from leading countries, including the U.S. Sub-regional organizations within Arctic nations have become important sources of support for development and coordination of Arctic policy.

Conference Summary

Science has provided overwhelming evidence of human-influenced Arctic climate change and the likelihood that the pace of change is accelerating. The effects are and will be felt around the world in the environment, weather and oceanographic conditions, commercial shipping and fishing, exploitation of natural resources and energy, agriculture, and wildlife. Indigenous peoples' way of life is changing, and new health and disease concerns are arising as climate changes in the North. If this were not sufficient cause for the urgent attention of policy makers, concerns also have arisen about whether the Arctic could become the focal point for a new "great game" of power politics if the principal Arctic coastal states—the U.S., Russia, and Canada—seek to escalate their claims to rich Arctic resources and sea beds through political or military means.

In short, the issue may be stated as follows: The Arctic is currently experiencing rapid systemic change with multiple economic, social, political, and security implications that are still imprecisely understood. Whether this plays out among the states and parties concerned through international cooperation, or competition and possible conflict, is a vital and debated question. Are the current institutions, treaties, and forums for Arctic governance adequate to deal with these challenges? Do non-state parties, principally indigenous peoples and NGOs, as well as non-Arctic states and bodies such as China, Japan, and the EU, have adequate representation in the deliberations? How has the global financial and economic crisis impacted the pathway and timing of the development of Arctic resources? And finally, can the dialogue between scientists and the policy community be improved to help address these multiple issues?

These and related questions were the subject of a conference held at Dartmouth College in Hanover, New Hampshire, December 1–3, 2008, on the subject of Arctic climate change and security policy. The three co-sponsoring organizations were the Dickey Center for International Understanding at Dartmouth and its Institute of Arctic Studies, the Carnegie Endowment for International Peace, and the University of the Arctic. The conference brought together an international group of academics, scientists, government officials,

and representatives of indigenous peoples for a free-ranging, multi-disciplinary discussion of the significant scientific, economic, political and security, and governance issues facing the Arctic over the next 10–20 years.

The conference was the inaugural event for the University of the Arctic Institute for Applied Circumpolar Policy (IACP), established by Dartmouth and the University of Alaska at Fairbanks, in collaboration with Urbana University. In keeping with the mission of the Institute, the meeting was shaped to create interdisciplinary dialog among scientists, policy makers, and indigenous peoples in an environment that encouraged open and frank discussion of issues and solutions.

Panels and specific questions addressed during background presentations and discussion:

PANEL I: CLIMATE CHANGE—THE CHANGING ARCTIC

- What are the current major areas of scientific research about the Arctic and what are the knowledge gaps?
- What do scientists see as the most important issues and research priorities?
- What scientific judgments will policy makers need to make informed decisions?
- What is the state of dialog between science and policy makers and how best can science inform them?
- Do the priorities match?

PANEL II: ECONOMIC OPPORTUNITIES

- What is the knowledge base on resources (e.g., oil, gas, fish) in the North that are under pressure at the present, or in the near future?
- What is happening already in terms of economic activity, shipbuilding, port construction, investment, and development as a result of climate change and new marine conditions?
- What are the major national and international concerns in developing shipping, tourism, and energy exploration and the impact on indigenous peoples?
- What are the effects of the current financial crisis on the prospects and timing for Arctic development?

PANEL III: THE POLITICAL AND SECURITY DIMENSIONS— MANAGING FUTURE CHALLENGES

- Is a new “great game” among countries over resources and boundaries coming or will cooperation and consensus prevail?
- What can we learn from how countries are already pursuing their interests?
- What insights do science and political science provide?
- How do we get policy makers to focus on these issues?

PANEL IV: INSTITUTIONAL AND GOVERNANCE CHALLENGES

- What are the relevant international institutions, organizations, and agreements that deal with the Arctic?
- What are the legal infrastructure and enforcement mechanisms?
- Are these mechanisms adequate in view of the challenges foreseen and, if not, what may be needed?
- Are these institutions and mechanisms broad enough to encompass the interests of non-member countries and parties such as China, Japan, and the EU, and various organizations representing indigenous peoples and other stakeholder groups?
- What if the U.S. does or does not join the Law of the Sea Treaty?

This conference summary is not intended as an exhaustive and fully documented analysis of Arctic climate change and associated security issues. In response to this report, a more focused analysis of policy options and governance structures for the Arctic is in preparation. Rather, we attempt to provide a synopsis of the most pressing policy issues identified by a diverse and highly qualified set of experts. This summary is followed by a set of policy recommendations that we feel—given the accelerated rate of environmental change in the Arctic, the change in leadership in the U.S. government, and the worldwide economic downturn—are pressing.

Science and Policy

Climate science is unambiguous—our planet is a set of closely linked physical systems of land, water, and atmosphere in which the Arctic is integral. Global warming is affecting the world’s weather, and sea ice in the Arctic is melting and thinning rapidly, declining 15% every decade over the recent past. Moreover, the pace of change is accelerating. Greenhouse gas emissions from industrial pollution and land use changes are the key factors. Recent studies suggest that black carbon emitted from industrial combustion and boreal forest fires are responsible for up to half of the observed warming in the Arctic. Analysis of ice core records shows that, in the past, abrupt, significant changes in Arctic temperatures occurred over short time scales, years to decades. Some scientists argue that we are already approaching—or have reached—“tipping points” in the climate system where large change is possible again, with serious consequences for coupled human-natural systems.

As the scientific understanding of climate change advances, policy makers are inundated with crisis management decisions. The Arctic and climate change must compete for their attention. To date, a communication gap persists among scientists and policy makers. Thus, there is a need for science to communicate more effectively and accurately and to develop better qualitative and quantitative models and frameworks with which to inform policy makers. Models, as abstractions of complex natural and coupled human systems, are among the most effective means to present the best science to decision makers. The latter, however, must be aware of the assumptions, limitations, and uncertainties of models, and the modelers must do their best to explain and quantify these unknowns. Indeed, even the models used in the most recent (2007) Intergovernmental Panel on Climate Change report did not capture the accelerated changes observed in the behavior of sea ice and ice sheets that scientists are recording. Greater participation by native observers and coordination of the extensive network of weather observing stations and field research stations, if adequately funded through programs such as AON (Arctic Observing Network) and SAON (Sustained Arctic Observing Networks), could provide new opportunities to increase the empirical base for scientific modeling. These models of “real world” problems are essential aids for meeting the needs of

Arctic shipping and resource development and for encouraging meaningful communication between the science and policy communities.

Science policy decisions are made in a fluid political environment in which trade-offs are constantly required at different levels of scale and with differing interests and stakeholders. In this context, science must be relevant if it is to meet people's needs and help sustain interest in the set of issues facing policy makers. Scientific information needs to be provided on a timely basis (keeping pace with environmental and political changes) and in a precise fashion, with an objective analysis of the consequences of different approaches clearly spelled out. If the goal of science is to inform policy, then political and research timelines also must be understood. Policy makers, on the other hand, should be literate in science and committed to using science in reaching decisions. Both policy makers and scientists need to understand their respective time constraints for reaching decisions.

In order to compete for funding of the best basic and applied science, scientists must understand and appreciate the decision makers and what their skills and motivations are for wanting scientific information. Scientists must tailor their messages to treasuries, which increasingly are playing an important decision-making role. More broadly, the pressing challenge we confront is to win sufficient attention from policy makers to push Arctic science and policy issues closer to the top of the list of national and international policy priorities.

Among the most central scientific research needs for understanding Arctic change and its human dimensions are better information on 1) changes in sea ice, snow coverage, and ice sheet behavior, 2) regional scale variation in climate change, 3) emissions, transport, and accumulation of industrial pollutants, 4) global linkages between the Arctic Ocean and Arctic climate, 5) ecological and social indicators of the health of the Arctic, 6) mechanisms causing abrupt climate change, and 7) modeling of land, ocean, and atmosphere interactions. We must determine whether we are reaching tipping points beyond which these systems are no longer resilient. To achieve these information needs, more funding for internationally-coordinated programs is required to provide monitoring for climate change and changes in industrial pollutants that affect the health of ecosystems and humans. Meeting these goals requires policies that coordinate the research programs of the Arctic states.

Indigenous peoples are central stakeholders in the process of scientific assessment and policy for a sustainable Arctic. Indigenous observers and their traditional knowledge are an underutilized asset in evaluating and understanding the processes contributing to rapid environmental change. Western researchers need to engage further with indigenous communities and organizations to

build bonds of communication and trust and together develop a body of scientific information that values and integrates indigenous knowledge on climate change and adaptation. Likewise, Western scientists must make their research accessible and understandable to indigenous peoples and fully involve them in formulating research questions and in conducting the work. Organizations such as the Inuit Circumpolar Council (ICC) and the other indigenous groups represented at the Arctic Council provide a gateway for bringing Western science expertise together with indigenous science. Innovative educational programs are needed to ensure that the next generation of polar scientists and engineers will have the scientific knowledge and communication skills to conduct research that benefits Arctic residents.

Economics, Resources, and Development

If there is to be a new “great game” in the Arctic, then the large energy resources of the region and conflicting claims over the sea beds containing them may be the triggering agent. Questions abound. What is the resource potential of the Arctic? Are these resources already being tapped? Does climate change offer greater accessibility and development? Is the current economic and financial world crisis affecting the pace of development?

The Arctic region is indeed a storehouse of natural riches—gas, oil, diamonds, coal, iron ore, gold, zinc, nickel, and others. Development of non-renewable resources has been going on for four decades. In terms of shipping, globalization of the Arctic and the condition of the global economy are the biggest issues, not climate change. Large numbers of ships are already in the Arctic for many reasons, more than 6,000 annually for tourism, fishing, and transport, mostly in summer. Tourism and fishing in the Barents and Bering Seas are rapidly increasing and few of these ships are ice-hardened. Also, fishing patterns and locations are changing in response to climate and the altered sustainability of some fish stocks. Much of today’s Arctic shipping is within the North and not intercontinental, and prospects for long-distance transportation are still uncertain.

There has been great public fanfare about northern sea routes and the Northwest Passage opening up for longer time periods due to sea ice melt and cheaper connections between Asia and Europe. In fact, there is much uncertainty amongst shipping experts about whether or under what conditions these routes will be economical. Even under accelerated climate warming, sea ice will remain in place for 6–8 months, and potentially dangerous floating ice will remain year round, necessitating the use of ice breakers for winter shipping routes and ships designed to meet the rigors of the Arctic Ocean environment. But there are important safety and environmental issues. Arctic shipping today is regulated by voluntary guidelines and inconsistent and ad hoc governance regulations. There is a pressing need for stable, rule-based regimes based on the UNCLOS and IMO (International Maritime Organization) rules for international marine coordination in the Arctic on safety, emission, and infrastructure

issues. The specter of a major incident with loss of life on a cruise ship in the Arctic is real and cannot be ignored.

Mining, extraction, and energy exploitation in the Arctic have been going on for some time. The largest zinc mine in the world (Red Dog Mine in Northwestern Alaska) and the largest nickel mine in the world (Norilsk Mine in northern Siberia) are located there, and prospects are good for development of gold, diamonds, and concentrated ores in Greenland and elsewhere. Climate change affects the timing of these projects and creates uncertainties in forward planning. In this area, science can play a major role. Firms need good scientific data to calculate shipping and commodity prices. But the most important factors affecting short-term economic development are prices and costs, not climate change, and here the current severe economic downturn is having major effects. Charters for large ore carriers are running at one percent of normal rates, and new or expanded Arctic projects are being delayed by paralysis in global credit markets. It is important to note that indigenous corporations are a major factor in Arctic economic development, and resource development projects in many of the Arctic states cannot go ahead without the approval and participation of indigenous peoples. There remains, however, a great need to ensure that indigenous stakeholders are full participants in decisions regarding resource development, transport, and commerce.

The main economic prizes in the Arctic are oil and gas and mineral resources. The primary reserves belong to Russia, and the major exploration activity also is theirs. Recent estimates from the U.S. Geological Survey are that 30% of the remaining world reserves of natural gas and some 10% of the oil are in the Arctic. To date, unresolved issues involving demarcation of sea beds under the UNCLOS are not a major issue in the pace of energy development; rather, the key factors are costs of development and the price cycle of oil and gas. Offshore projects are the most costly and environmentally dangerous, and most of the known reserves of oil and gas are within national Exclusive Economic Zones (EEZs), which extend 200 nautical miles from the coastline. Thus, immediate prospects for interstate conflict over oil and gas reserves appear small.

Of the Arctic coastal states, Russia, Canada, Norway, and the U.S. are the most focused on Arctic resource development. As the new Russian Arctic policy statement (September 18, 2008) underscores, this region is of major importance for energy production, the economy, and national security. Russia is beginning to focus on off-shore development, but it needs foreign technology to succeed over the short term. Their current regulations and procedures, however, do not favor foreign involvement and investment. They could succeed over time without international partners, but they will endure short-term problems in doing so. The potentially enormous Shtokman off-shore oil and gas field is scheduled for first drilling in 2010 and exploitation in 2015, but this could be delayed. Shtokman is interesting because of the role of Statoil/

Hydro and Total. It has a unique ownership procedure that allows some scope for foreign involvement.

The international financial crisis will impact Arctic energy development. Fuel prices are volatile and falling overall, but so are many development costs. The balance between investment and return is not favoring large new projects in the Arctic. This situation could cause the industry to focus on more on-shore development in North America and in locations with more hospitable climates where production and transportation costs are lower. On the other hand, the revaluing of the ruble might increase Western interest in Russian partnerships, especially if the Russians make their regulations more attractive to foreign investors. Regardless of cost, there are strong incentives for private oil companies to seek leases and develop oil and gas resources in the North because that is one place they can still go.

The political/economic outlook on Arctic development is mixed. Concerns for energy security will ultimately push development of Arctic oil and gas, but the financial crisis and slowing of world economic activity is depressing energy prices and consumption and making it very difficult to predict the pace and extent of development. As a result, there likely will not be pell-mell development in the North over the near term. This pause due to the slowdown in the global economy gives the international community the chance to develop environmental and development rules of the game, an opportunity that should not be lost. The challenge is to win the attention of policy makers for implementation of economic and environmental adaptations in the North, not just short-term mitigation to avert a crisis.

This likely decrease in the pace of economic development affords the opportunity to better understand the impacts of climate change and development on the subsistence way of life for many indigenous peoples. The economic and social viability of Native communities such as those in rural Alaska is seriously in question. Residents are leaving those communities for the cities, and economic adaptation for those who remain is very problematic.

Political and Security Issues

What are the political and security ramifications of climate change on the Arctic? During the Cold War the Arctic was a security flashpoint with U.S. and Soviet nuclear submarines patrolling under the North Pole and bombers airborne over the region. Today, the Arctic is disassociated from great power politics, but will that remain the case? How will governments define their interests in the region—in cooperation with other states, or will they see the Arctic as a zone of competition and possible conflict? How can the attention of policy makers be directed to Arctic issues without stoking competition? The press has highlighted recent actions by states to enhance their territorial claims, but is the situation really heating up?

Countries with military/security interests and naval capacity in the Arctic are Russia, Canada, Norway, Denmark, and the U.S. Russia has been the headline grabber with the Chilingarov expedition planting a Russian flag on the sea bed under the North Pole and the resumption of bomber overflights. Russia's activities could be disruptive to the region if its recent focus on politics and territorial claims retains priority over increased attention to science and international cooperation. The driving factors may be Russian prestige, identity, and image, which converge on borders and territorial claims. For Russia, sovereignty in the Arctic is a "hard" security issue. Russian military interests center on the Kola Peninsula, home to the Russian nuclear submarine fleet, and on rebuilding the Northern fleet. An unknown factor is whether the submitted Russian seabed territorial claims under the UNCLOS will be upheld. A negative decision might provide incentive for Russia to act unilaterally, although this prospect is unlikely. Even if this happens, we do not foresee clashes over resources, nor is a full-blown arms race in the Arctic likely. And there will be no nuclear testing.

Russian Arctic policy involves many actors and interests with a clear policy line not always evident. Russians agree that environmental security is an important Arctic issue and that pollution from outside the Arctic must be reduced. They are not interested in a new international fault line over the Arctic.

Canada has never had significant military capabilities in the Arctic, but over the past two years it has conducted operations there to build capacity and presence utilizing Inuit knowledge. This reflects an overall increase in Canadian

interest in the Arctic manifested also in the Canadian IPY (International Polar Year) program, mapping for development purposes, construction of new icebreakers, and opening new research stations. In addition, Canada has initiated the 2030 North planning process to reshape its Arctic policies. Development of oil and gas resources has depended on world prices and the cost of infrastructure development. Canada, however, is looking beyond the current economic downturn to, for example, exploitation of gas hydrates twenty years in the future. It has made great progress in settling Northern land claims with First Nations groups. The key issue with the U.S. is whether the Northwest Passage sea route is Canadian internal water or an international strait as claimed by the U.S. But the dispute is “frozen” for now by mutual agreement.

Canada is also defending its political interests, for example, by making vessel notifications in the Northwest Passage mandatory and making clear it will not cede anything in the North. Will military means be used? Probably not. Canada aims to make its case for Arctic Ocean resources under Article 76 of the UNCLOS. Canada is not seeking a land grab, and its sovereignty claims should not be exaggerated. Indeed, many Canadians believe that in the future the main Arctic issue will be environmental, not military.

Release of the revised U.S. Arctic Regional Policy occurred in January 2009. At the time of the conference, current policy, written in 1994, listed meeting post–Cold War national security and defense needs as a U.S. goal in the Arctic. The new U.S. policy statement reiterates this goal. The declining condition and capacity of the U.S. ice breaker fleet, however, is a sign of disinterest on Washington’s part about military or security threats emanating in the region from current disputed issues. It is also a serious limitation on U.S. science in the polar regions.

For Greenland, which has just approved a new self government relationship with Denmark, the focus is on developing a cooperative infrastructure in the Arctic, i.e., through the Arctic Council and the International Maritime Organization (IMO). The Ilulissat Declaration of the five Arctic coastal states in May 2008, which pledged to use UNCLOS to resolve overlapping extended continental shelf claims, has reduced some of these national tensions. Iceland, however, has objected to its exclusion from these discussions. Russia and Canada have unresolved issues, but these are not military in nature. Greenland’s desire to have direct participation in the deliberations of Arctic states is complicated by Danish policies, which are focused on Europe and can be at odds with the interests of Greenlanders. The EU, China, and Japan are among the parties with growing Arctic interests that need to be recognized in the Arctic Council.

Territorial claims under UNCLOS leave some of the Arctic Ocean unclaimed and larger zones where there are overlapping claims. The latter includes the Barents Sea, where for the past thirty years claims by Russia and Norway

have not prevented cooperation in managing fish stocks. States should be able to adjudicate overlapping claims through UNCLOS as there is no oil and gas in these regions. Another possibility is joint management or a commons over the disputed areas. The need for large-scale ecosystem-based management regimes to protect the integrity of the Arctic Ocean is receiving increasing attention, including proposals for an Arctic Treaty or Park in order to manage and protect the Arctic Ocean as an international commons.

In sum, security concerns and issues seem not to be the pressing factor driving Arctic policy. Overblown press coverage of Arctic security issues appears to be in inverse relationship to security realities. There are no large geopolitical fault lines, and no resource wars are anticipated. Questions remain, however, over U.S. and Russian positions and the use of symbolic gestures for political purposes. We must also be mindful of territorial claims by countries such as Canada and Denmark, which can contribute to general tensions in the region. UNCLOS is the best recognized instrument to resolve these issues, but unilateral actions could upset the process. All of this leads to the possibility for building interstate cooperation on the structure and momentum of the Arctic Council.

Governance and Institutions

Arctic governance and institutions must be built on scientific findings, economic and environmental considerations, and the political/security situation derived from the first two factors. Until now, international Arctic governance has been led by the Arctic Council, an organization of eight Arctic states, six permanent Participating Parties (indigenous peoples' organizations), and observers. The Council and its bodies have played an important role in focusing attention on environmental and climate-related issues, but the Council has no enforcement mechanism, and security and political issues are not within its purview.

Governance within the Arctic presents unique challenges. Unlike Antarctica, the Arctic is not a continent and has permanent residents, considerable natural resources, and a high degree of developed industrial activities. Most territorial claims within the Arctic are not overlapping, whereas the Antarctic is burdened with them. Due to its strategic importance, the Arctic, unlike Antarctica, has been a venue for Cold War competition. These are some of the reasons why an Antarctic-like Treaty that provided for complete demilitarization, freezing of territorial claims, and freedom of scientific research will not likely be concluded for the Arctic.

Another unusual characteristic of the Arctic and a considerable challenge for keeping Arctic policy high on the U.S. government's agenda is that there are no fully Arctic states, only states with Arctic sub-regions. The result is shared or overlapping governance on multiple issues that play out at local, state, regional, and international levels. This is a key reason why it has been so difficult to get policy makers to focus on the Arctic itself, rather than treating Arctic issues as a subsidiary to other policy decisions. As a consequence, Arctic concerns are at risk of being "diluted" by competing problems emanating from more populated regions. Questions abound. Is there a precise definition of the Arctic? Is Arctic citizenship a viable concept? Is it necessary to create a new organization of Arctic states and parties? Proposals are legion: a new Arctic Treaty, an Environmental Treaty, an Arctic Charter, Greenlandic-style self-government, a strengthened Arctic Council, and greater participation by organizations such as IMO.

What are views of the major stakeholders on this multitude of issues? Canada wants a stable, rule-based regime in the Arctic in which it can promote economic and social development, protect the environment, improve and develop governance, and exercise its Arctic sovereignty. For example, Canada has taken the initiative to expand the geographic scope of its Arctic Waters Pollution Prevention Act. The Arctic Council, not a new Arctic Treaty or Charter, is central to this strategy. No threats are seen to Canadian sovereignty in the Arctic, and the current disputes with Denmark over Hans Island and the Lincoln Sea and with the U.S. over the Beaufort Sea are minor and well managed, if not resolved.

Canada's dispute with the U.S. over the Northwest Passage and the U.S. dispute with Russia over Northern Sea Route (NSR) straits concerns their legal status—whether they are internal or international passageways—not ownership or sovereignty. The sides now agree to disagree. Other maritime nations, such as the UK, are also stakeholders in resolving these disputes. Even with global warming, the economic benefits of a Northwest Passage remain uncertain, since shipping continues to face difficult navigation in areas of variable ice coverage. Canada's recent extension of its Arctic Shipping Laws and Regulations is not meant to be a confrontational action. For Canada, the Ilulissat Declaration and UNCLOS represent the core of Canadian policy regarding navigation and access to ocean resources.

The European perspective is that of a party now wanting greater involvement and participation. They see the Arctic in a new phase with new states increasing their presence politically and economically. Russia and Canada have a long history with the Arctic but the EU is still framing its positions. The major issues of the day—energy, shipping, and protection of animals and fish—force parties in different directions on Arctic governance and policy. An Arctic Treaty seems dead from the start, but the question is whether current governance vehicles are sustainable. New environmental regulations will require the input of science to provide data about the linkages of the Arctic to the rest of the world. The challenge facing states is to work out relationships that keep the Arctic a special place while still linking it to the world.

Russia's governance viewpoint seems close to Canada's, i.e., the Northern Sea Route is internal Russian waters. It also believes that current international regimes are adequate for solving problems. Russia's declared policy is strongly supportive of the Arctic Council. But its actions are not always consistent with this declared policy. Russia does not endorse the idea of a new international treaty on the Arctic and believes there is little support for it. It believes UNCLOS is very important and is critical of the U.S. failure to ratify it.

There is broad support in the new U.S. administration for ratifying UNCLOS. The U.S./Canadian relationship on Arctic issues is working well and shows little friction, even on disputed matters. The reality, however, is that

the U.S. has many interests worldwide, and the Arctic is not high on the priority list. The past U.S. position on climate change and international agreements was not popular, but efforts to force the U.S. to change were not effective. The two strongest powers in the Arctic Council are the U.S. and Russia. Russian positions are not well coordinated. U.S. positions are coordinated, but this is complicated by the fact that both federal and state (Alaska) levels are involved in policy making. Arctic Council members must operate from this reality and strive to raise Arctic issues at the policy level to get the attention of the U.S.

Alaska makes the U.S. an Arctic coastal state. Oil extraction supports 80% of the state's budget. Climate change is already having significant effects in Alaska in the form of massive forest fires, permafrost melt, coastal erosion, changes in forest diversity, and infrastructure damage. The question for Alaska is how to involve all the stakeholders and the best science to deal with these policy challenges. Under a program begun in 2007, Scenario Network for Alaska Planning (SNAP), devised at the University of Alaska Fairbanks, UAF scientists and social scientists are providing data and models on adaptation and mitigation strategies to local, state, and federal government officials. The governor of Alaska subsequently created a sub-cabinet commission on climate change. The SNAP program is informing their deliberations through consultation, preparation of base-line scientific information, and white papers. The University of Alaska Fairbanks, NGOs, and indigenous organizations are represented, and local, state, and federal governments are all involved.

It is generally believed that nation-states will continue to dominate Arctic governance through the Arctic Council, but the workings of that body and others such as the IMO need to be improved to handle practical issues such as marine safety, protection of the environment, and environmental security. Scientific information provided to the Arctic Council needs to be improved, but science should not be politicized. Indigenous peoples must have a stronger voice at the Arctic Council and be adequately funded to participate fully in various Arctic Council assessments and projects.

Conclusions

The Arctic strongly influences world climatic conditions, and in turn it is deeply affected by outside factors, principally industrial pollution. The North will be a key player in energy supply and security as well as for resources such as zinc, gold, diamonds, and even fresh water. Globalization has already come to the Arctic with good and bad results, but Arctic governance and institutions are still evolving.

Specific findings from the Conference's four-part agenda and discussion follow below.

Science plays a vital role in framing issues and providing the data and models necessary for policy makers to come to decisions about adaptation to climate change. Models, however, must be more precise and spell out the consequences of action or inaction. We should also be cognizant of the reasons models fail, and learn from them. Both Western science and traditional knowledge must contribute to this process. Science education is necessary to raise the consciousness of the public and policy makers about global warming, and this must begin at an early school age. The current world economic downturn is depressing fuel costs and usage, and it is imperative that this "time-out" period be used to cut consumption of fossil fuels on a lasting basis. The cycle of conditions feeding global warming begins with burning fossil fuels, and the current slowdown should not cause us to turn away from conservation measures and development of technology using renewable energy.

Climate change influences the timing of Arctic resource development, but the major factors are price and cost. Economic activity, mainly mining and energy, which has been steadily increasing, now is affected by the overall economic decline and drop in price and demand for fuels and commodities. Large enterprises will continue to experience the downturn, and expansions and new projects will be delayed. Even with melting of sea ice, northern waterways will remain risky due to floating ice and undeveloped infrastructure. The biggest risks are safety at sea and environmental contamination of the water. Organizations such as the IMO and the Arctic Council must face up to these challenges.

Industry is in great need of scientific data and research, and barriers to multidisciplinary study must be breached. Industry and governments also must pay

more attention to the impact of climate change on Native peoples. The subsistence way of life is passing, and new economic development and job opportunities are needed; “handouts” simply do not work. The voices and interests of indigenous peoples must be integral to decisions affecting them.

Improved communication on many levels is also a necessity. Nowhere is this more obvious than the gulf that exists between science and policy. Science declares that there are major problems being caused by climate change in the North, but the policy makers are not given starting points, priorities, or clear steps to take. More targeted research as well as basic research is needed, particularly on where the abrupt turning points may be and when. The science must be relevant, timely, and sustainable. Policy makers also must provide better guidance and sustained funding if they are to expect useful data and models. The press must also do a better job of communicating Arctic realities. Frightening scenarios grab headlines, but they do not accurately portray the situation or educate the reader.

This problem is especially present in depicting the political/security situation in the North. “Great game” language is not applicable to the Arctic, where there are no fundamental security issues. States are not yet defining their interests in zero sum terms. No geopolitical fault lines reminiscent of the Cold War are evident, but there are some U.S.–Russian military tensions that bear watching. The U.S., Canada, and Russia all approach the Arctic in a state-centric fashion, so the applicable political model here is of traditional interstate negotiations as typified by the Ilulissat Declaration. But there is no real security competition, and states appear ready to manage border-resources issues under UNCLOS. Climate change, rather than security risks, is producing environmental issues that require new or bolstered institutional responses.

Judging from all the above, there is good and bad news for Arctic governance. The good news is that the Arctic is not doomed to great games or high politics, and there is the chance to develop a cooperative agenda and framework. Science can play an important role in framing the agenda by producing models that are not nation-state based. Consensus exists that it is time to focus on these matters, but there is no agreement on how to approach the issues, which include: 1) Is the Arctic a region and should this issue be discussed? If there is interest in defining the Arctic, can this be organized in a meaningful way? 2) If the state-centric approach is continued, how can we ensure that the voices of indigenous peoples are heard? How do you include China and the EU? 3) Is the Arctic Council capable of dealing with governance challenges, or is another venue such as a treaty needed? If, as seems likely, the Arctic Council remains the chosen instrument, how could it be improved, and how should functional issues like maritime safety and fishing be handled?

Policy Recommendations

U.S. POLICY

- Above all, the U.S. must immediately ratify the United Nations Convention on the Law of the Sea (UNCLOS). Early action would enhance the stature of the U.S. in working with the Arctic Council. All parties, state and non-state in the North, agree that the Law of the Sea is the framework for handling territorial and border claims and that the absence of the U.S. is unacceptable. Deliberations on claims are already proceeding under UNCLOS. The U.S. is gathering data for possible future claims, but these would have no standing unless the U.S. becomes a Treaty partner. The U.S. played the lead role in bringing the international community to agreement on the 1959 Antarctic Treaty, and ratification of UNCLOS would allow the U.S. to again take a leadership role in promoting international cooperation and dialogue in the North.
- The U.S. should take a leadership role in international climate policy under the ongoing United Nations Framework Convention on Climate Change to slow climate change and mitigate its impacts on Arctic residents. This will need to be backed up by new congressional actions.
- The new U.S. administration should create a sub-cabinet commission on global warming headed by the Vice President. The Alaskan sub-cabinet model involving the University of Alaska Fairbanks, NGOs, Alaskan state and federal government authorities, and indigenous group leaders demonstrates how scientists, interested stakeholders, and policy makers can cooperate on issues of adaptation and mitigation of climate change. Because of Alaska and the growing impact of climate change on the lower 48 states, the U.S. needs to better organize itself for this challenge.

INTERNATIONAL GOVERNANCE AND FORA

- For the foreseeable future, the Arctic Council will be the principal body of governance in the North. The Council has had a non-permanent secretariat funded by Norway for six years. With no political/security issues on

the horizon, the Council is best placed to deal with issues resulting from globalization of the Arctic, such as increased shipping, environmental security, etc. There is a broadly felt need for high level policy attention to Arctic issues, and a permanent Arctic Council secretariat could provide that focus and develop recommendations for dealing with functional issues. The state-centric approach has prevailed to date in the Arctic, but a modification in the case of the Arctic Council secretariat will promote Arctic cooperation and focus the attention of policy makers.

- Sub-regional organizations of Arctic states, such as the Northern Forum, should be better supported to discuss their common concerns, cooperate on scientific research, and bring attention on Arctic policy issues to their publics and governments. These would also provide a venue for discussion of the economic, social, and environmental concerns of indigenous peoples. Coordination of activities at this scale should allow issues to reach the Arctic Council more quickly and with better information for analysis.

ARCTIC SECURITY REDEFINED

- The environment and the management of natural resources are the most pressing security issue in the North. States are committed to addressing issues of boundaries and Arctic Ocean access through existing institutions, principally UNCLOS. Large-scale damage to the Arctic environment from transportation accidents, energy development, fishing, tourism, and the long-range transport of pollutants from the South pose greater immediate threats than classic security issues. Emergency response systems and contingency plans for the North are needed to respond to possible ship disasters, industrial pollution, oil spills, etc. Such a response system is currently non-existent or not up to the task. Given the increased shipping activity in the Arctic and the lack of ports and rescue capability, the need is growing. This should be a task for the Arctic Council in cooperation with existing specialized bodies such the International Maritime Organization.
- The need for large-scale ecosystem-based management regimes to protect the integrity of the Arctic Ocean is receiving increasing attention, including proposals for an Arctic Treaty or Park to manage and protect the Arctic Ocean as a commons. These proposals underlie the need for a strong Arctic Council and U.S. participation in UNCLOS in order to provide institutional protection for the Arctic Ocean.

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