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Testimony of Abbie Tingstad¹
The RAND Corporation²

Before the Standing Committee on Foreign Affairs and International Development
Canadian House of Commons

November 26, 2018

Chairman Levitt, distinguished members of the committee, thank you for the opportunity to appear before you this afternoon. Climatic, economic, technological, geopolitical, regulatory, and social forces are driving and will continue to drive the future of the Arctic. The Arctic has never been totally immune to change, but in recent years, nations have recognized that the Arctic is emerging from its relative isolation and will be influenced by broader, global trends. Among other forces, climate change is increasing worldwide interest in the Arctic, where the physical impacts of this change are being felt sooner and more intensely than in many other areas.³ Parts of the Arctic Ocean have experienced intense declines and variability in sea ice thickness and multiyear ice coverage.⁴ In addition, surface temperature increases in the region, amplified by ice-albedo feedback, have impacted ice sheet and glacier mass, spring snow cover, and characteristics of seasonally frozen ground.⁵ Here in Canada, numerous studies have illuminated the effects of rising surface temperatures on the cryosphere

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² The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

³ R.K. Pachauri and L.A. Meyer, eds., *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Geneva, Switzerland: Intergovernmental Panel on Climate Change, 2014.

⁴ Ron Kwok, "Arctic Sea Ice Thickness, Volume, and Multiyear Ice Coverage: Losses and Coupled Variability (1958–2018)," *Environmental Research Letters*, Vol. 13, 2018.

⁵ Josefino C. Comiso and Dorothy K. Hall, "Climate Trends In The Arctic as Observed From Space," 2014, *WIREs Climate Change*, Vol. 5, 2014, pp. 389–409.

and reported on more frequent and extreme weather and erosion events, which are causing pronounced effects on indigenous populations.⁶

Some of these impacts are becoming increasingly important for the Arctic geopolitical landscape. Much of my research has focused on the security and safety implications of the Arctic's increased maritime accessibility. Changes in sea ice have the potential to enable new and more frequent connections and operating spaces among countries. Some aspects of my research have also considered changes to Arctic land and coasts, as these changes could further open the door to shared international challenges, such as community sustainability and illicit trade.

Today, I will share insights based on three peer-reviewed research projects that I helped undertake. Two of these projects focused on factors that might either reinforce or unravel cooperation between Arctic countries. The first report, *Maintaining Arctic Cooperation with Russia: Planning for Regional Change in the Far North*,⁷ I will hereafter refer to as the *Arctic Cooperation with Russia study*. This work examined the factors contributing to cooperation in the Arctic and assessed whether these can be maintained in the face of further regional changes.

The second report, *The Future of Arctic Cooperation in a Changing Strategic Environment*,⁸ I will hereafter refer to as the *Arctic cooperation tabletop exercise*. Researchers developed and conducted a tabletop exercise designed to elicit subject-matter expert insights into the pattern of cooperation in the region, as well as how resilient this cooperation might be against changes and events that the region is now experiencing or could experience in the 2020s.

The third research effort, published in a report titled *Identifying Potential Gaps in U.S. Coast Guard Arctic Capabilities*,⁹ I will hereafter refer to as the *U.S. Coast Guard Arctic analysis*. This research developed and used qualitative scenarios to examine the implications of potential capability gaps and types of solutions for mitigating them.

I think the foundations of these studies may provide important perspectives to support committee deliberations on potential drivers of geopolitical change and related issues of consequence. In particular, this testimony will emphasize the following points:

- Climate's impact on the geopolitical future in the Arctic will be fueled or moderated by a number of other factors that must be considered together to understand potential effects.
- Scenarios can be used to conduct thought experiments with stakeholders to envision how drivers of change could influence geopolitical and other types of outcomes in the Arctic.

⁶ Lewis Archer, James D. Ford, Tristan Pearce, Slawomir Kowal, William A. Gough, and Mishak Allurut, "Longitudinal assessment of climate variability: a case study from the Canadian Arctic," *Sustainability Science*, Vol. 12, 2017, pp. 15–29.

⁷ Stephanie Pezard, Abbie Tingstad, Kristin Van Abel, and Scott Stephenson, *Maintaining Arctic Cooperation with Russia: Planning for Regional Change in the Far North*, Santa Monica, Calif.: RAND Corporation, RR-1731-RC, 2017.

⁸ Stephanie Pezard, Abbie Tingstad, and Alexandra Hall, *The Future of Arctic Cooperation in a Changing Strategic Environment: Insights from a Scenario-Based Exercise Organised by RAND and Hosted by NUPI*, Santa Monica, Calif.: RAND Corporation, PE-268-RC, 2018.

⁹ Abbie Tingstad, Scott Savitz, Kristin Van Abel, Dulani Woods, Katherine Anania, Michelle Darrah Ziegler, Aaron C. Davenport, and Katherine Costello, *Identifying Potential Gaps in U.S. Coast Guard Arctic Capabilities*, Santa Monica, Calif.: RAND Corporation, RR-2310-DHS, 2018.

- Arctic nations' and other stakeholders shared duties and interests in the Arctic may be the largest contributing factor to geopolitical outcomes.

Climate Change Is Important, but Operates with Other Factors to Influence Geopolitics

In some ways, the effects of climatic changes in recent decades have made the Arctic much more visible. Increased attention is paid to observing, sensing, and modeling the Arctic environment. Potential flashpoints related to control over resources, access to strategic and economic waterways, design and implementation of regulations and law enforcement, and development of multipurpose land-based infrastructure are starting to receive greater focus. Then again, we might also view the effects of climate change as encouraging cooperation. Physical environmental changes may introduce common challenges, including land and coastal instability, environmental stewardship, and safety across all domains (land, sea, air, cyber, space, and the electromagnetic spectrum), that require a cooperative solution among Arctic nations and other stakeholders.

In the *Arctic Cooperation with Russia study*, we found it useful to consider the potential effects of climate change on Arctic geopolitics in the context of other factors. Economics, technology, the regulatory environment, and social issues influence the paths of change that warming temperatures and other environmental conditions initiate, enable, or impede. Some forces shape access to and use of the Arctic in the sense of either motivating or discouraging it. For example, we might consider wellbeing of indigenous communities, anticipated or realized hydrocarbon and fishery resources, and the relative strategic importance of the region in the context of priorities for Arctic nations and other stakeholders.

Additional forces other than climate change also play a fundamental role in promoting, restricting, or otherwise spatially controlling access to the Arctic. These forces include technological advancements (e.g., ability to operate in icy waters and drill to greater depths, automation, network connectivity); legal conventions, other laws, and regulations; military postures and operations; and widely observed operational and cultural norms, including those related to willingness to participate in risky behavior. One way to think about these forces that delimit access is based on their effect on raising or lowering the “cost of doing business.” This refers not only to economic activity but to any sort of activity that would leverage any real or perceived benefit of operating in the Arctic.

It is the interplay among all of the forces mentioned, and perhaps others, that will continue to shape the path of Arctic geopolitics. How could this occur? Here, I will briefly provide two illustrative examples.

In a first example,¹⁰ we might consider a world in which modest warming leads to different impacts across the Arctic, a general increase in maritime access, and stable or decreasing land access. Soaring energy prices and advances in all-weather drilling technologies help to fuel hydrocarbon extraction. This is further supported by increases in both government and private

¹⁰ Tingstad et al., 2018.

sector infrastructure. There is low tolerance for environmental impact, and partnerships with local communities gain increasing importance. Overall, Arctic nations recognize the benefits of cooperation in supporting an environmentally conscious increase in economic activity. Stability is punctuated by occasional tensions, which are calmed through the use of existing channels for cooperation. This is also supported by mutual understanding of economic benefit from regional stability.

In a second example,¹¹ the same modest warming described before might instead be accompanied by a more modest increase in economic activity because of incremental, but not dramatic, improvements in technology and unstable energy market dynamics. Domestic safety incidents, such as those associated with criminal activity, increase across the Arctic. Local communities struggle to accommodate newcomers interested in economic opportunities and fleeing social unrest elsewhere. Domestic disorder is exacerbated by a loosening of the regulatory environment. Tensions increase as nations build up military presence in the region to protect northern areas from perceived or real threats. The threads of international cooperation are stretched to a breaking point, as stakeholder visions for the future of the Arctic diverge and the benefits of cooperation are not felt along a unified front.

The Future Is Far From Certain, But Some Scenarios Are Useful

In 1979, the statistician George Box wrote a paper on the philosophy of robust procedures in which he argued that “all models are wrong, but some models are useful.”¹² This aphorism has now been widely applied to scientific models. I would further suggest the same may be true for scenarios used in thought experiments, such as those my colleagues and I conducted in the *Arctic cooperation tabletop exercise* and the *U.S. Coast Guard Arctic analysis*. That is, though it is extremely difficult to weigh in on the likelihood of any given scenario coming to pass, these scenarios can still be helpful in weighing the advisability of different courses of action for the future.

These two research efforts were very different in their use of scenarios, but they both considered geopolitical factors among other changes and developments in the Arctic. They were designed wholly or in part to elicit discussion about cooperation and partnerships, and conditions—including geopolitical ones—under which these might be undermined.

The *Arctic cooperation tabletop exercise* employed scenarios to examine the potential implications of three sets of issues that might be or might become contentious in the 2020s:

- overlapping claims of Arctic nations regarding the extension of their continental shelves
- increased maritime activity
- maritime incidents that could quickly escalate.¹³

¹¹ Tingstad et al., 2018.

¹² George E. P. Box, “Robustness in the Strategy of Scientific Model Building,” University of Wisconsin, Madison Mathematics Research Center Technical Summary Report #1954, May 1979, p. 2.

¹³ Pezard et al., 2018.

These topics were selected, among several we considered, on the basis of relevance to Arctic security and stability in 2017 (when the exercise was conducted) and on their plausibility as 2020s issues that could potentially raise tensions among two or more Arctic nations. We selected scenario topics that did not single out any particular nation as an ultimate aggressor. For each scenario, participants were asked to consider how different stakeholders would respond and what might cause Arctic cooperation (the baseline assumption) to unravel.

Participants first considered the issue of overlapping claims after being provided with a set of starting assumptions about the state of different Arctic nations and other stakeholders (e.g., native communities, economic interests) with recommendations from the United Nations Commission on the Limits of the Continental Shelf (CLCS) on extended continental shelf claims that overlap for Russia, Denmark, and Canada close to the North Pole. Following adjudication that resulted in modest changes to the exercise's constructed "world," participants were then asked to consider issues in the 2020s. They considered whether and how the further development of waterways through the Northwest Passage and Northern Sea Route could trigger opportunities for additional economic cooperation as well as risks related to competition, security, safety, and the environment. Finally, participants considered a 2020s scenario, in which two safety incidents occurred in quick succession. The first safety issue centered on a fictitious blocking of an icebreaker supporting hydrocarbon resource development by members of a nongovernmental organization. This scenario provided an opportunity for up to four Arctic nations, as well as additional (e.g., energy) stakeholders, to conflict with each other. The second safety incident involved a near-collision between ships, one bound for a NATO exercise in the Arctic and the other supporting Russian economic activity in the north.

The purpose for using scenarios in the *U.S. Coast Guard Arctic analysis* was to determine challenges in conducting response operations across multiple U.S. Coast Guard statutory missions. Participants identified enablers—ranging from materiel capabilities to specific partnerships—that were helpful in preserving life, minimizing economic damage, protecting or recovering the environment, and maintaining security within the context of each scenario. These were compared with available or currently planned enablers, such as ships, helicopters, and partnerships. This comparison helped detect existing gaps and identify possible avenues for mitigating these gaps. The workshop participants began by considering Arctic events that might occur in 2017:

- ships collide in the Bering Strait
- a passenger airliner goes down somewhere north of the Alaska, U.S.-Yukon Territory, Canada boundary
- activists in kayaks protest new offshore oil drilling programs
- a small coastal community is threatened by a storm surge and severe weather.

Though primarily selected to spur discussion about tactical response, these incidents involved multiple international stakeholders.¹⁴

Following this discussion, we invited our workshop participants to consider a broad range of event types occurring in the 2030s.

¹⁴ Tingstad et al., 2018.

Within the context of a world in which measured economic growth draws people and primarily legal economic activity north, workshop participants discussed

- the implications of a new, deepwater port
- an offshore oil rig explosion
- a protest against hydrocarbon extraction for environmental reasons.¹⁵

Within the context of a world in which disorder is increasing, regulations loosen, people are migrating north, and international cooperation is weakened, workshop participants discussed

- a suspected cyber attack that takes out power in three U.S. Arctic villages
- foreign vessels increasingly fishing illegally in the U.S. Exclusive Economic Zone
- a suspected terrorist attack on a cruise ship
- illicit trafficking of people and goods.¹⁶

These scenarios collectively highlight some—but far from all—of the potential challenges that could be encountered in the Arctic in the 2020s and 2030s. Our research suggests that it could still be useful to explore the implications of scenarios, even if these miss key events that come to pass in the future. Despite lacking perfect foresight, much can be learned about geopolitical relationships and decisionmaking through this kind of “what-if” analysis. Scenarios also pave the way to understanding key signals or “signposts” that indicate change in a particular direction is afoot.

Geopolitical Future Hinges Upon Stakeholder Desire for Unity in Addressing Changes

Diminishing sea ice is slowly eliminating an important physical barrier to Arctic maritime access. Alongside enjoying any potential economic gains, this means that Arctic nations will have to work harder—in perception or in reality—to provide security, facilitate new economic developments, and environmental protection. There are also other important aspects of managing gradually more-accessible maritime areas and changing coastal and inland areas. This includes not only managing agreements, activities, and expectations at the strategic level with international Arctic stakeholders but also watching domestic developments in local communities. Local communities can be the first responders to incidents of importance to the state of Arctic geopolitics. Consider, for example, the incidence of new smuggling operations or vessel groundings.

Overall, our research found relatively few “flashpoints” that would plausibly test international cooperation in the 2020s and 2030s under the growing changes in the Arctic influenced by climate. However, there are a few key issues that might be termed “wildcards,” which could, under rare circumstances, lead to increasing tensions:

¹⁵ Tingstad et al., 2018.

¹⁶ Tingstad et al., 2018.

- Maritime access and activity increase faster than countries anticipate and can manage with existing infrastructure, leading to increasing disorder and real or perceived security threats. Responses might include a buildup of defense infrastructure, which could negate any positive effects on Arctic cooperation.
- Untapped Arctic offshore oil and gas suddenly become much more economically viable, and countries that perceive their seabed claims as contested in CLCS recommendations form a series of tactical alliances of open and closed seas outside of the United Nations Convention on the Law of the Sea framework.
- Agreements, economic alliances, or other activities signal to one or more Arctic nations a change in the balance or necessity of power in the region. Examples include Russian perception of growing North Atlantic Treaty Organization power in the Arctic and Greenland and Iceland's courting of Russian and Chinese infrastructure investments.
- Maritime safety incidents occur again and again test Arctic nation patience and nations or other actors begin to blame one another for real or perceived increasing disorder. Tensions might further increase if countries choose to use any of these relatively minor and primarily safety-related incidents (e.g., ship collisions or near-collisions) as an opportunity to make stances on longer-term security issues clear. For example, in one *Arctic cooperation tabletop exercise*, scenario participants suggested that Denmark could plausibly choose to view an event in which an icebreaker it has leased is blocked from accessing a new deepwater oil field as a test of its ability to administer Arctic territory, while Russia (which owns the icebreaker in that scenario) could decide to treat this incident as an act of piracy.

These “wildcards” all represent some form of breakdown in common vision and communication between Arctic countries and other stakeholders. Naturally, other such events could occur, including those that are not being signaled as potential concerns today.

Each Arctic nation will continue to have individual stakes, interests, and plans regarding the Arctic. Under pressure from climate change, these interests will necessarily test existing security and cooperation. However, Arctic cooperation will continue to provide benefits to stakeholders insofar as there are some commonalities in vision, such as promoting safety and environmental management. For example, the *U.S. Coast Guard Arctic analysis* reaffirmed some of the very practical reasons why a cooperative Arctic geopolitical environment can serve the interests of multiple stakeholders. This work articulated types of persistent gaps related to voice and data communications, domain awareness, and physical access. Sharing knowledge and resources—including with international partners—was an important aspect of strategies to start closing these gaps. In this way, such capability gaps also form an opportunity to continue cooperation if desired.

Importantly, Arctic nations may increasingly contend with the need to find a forum or forums in which to appropriately discuss security-related matters. For decades, taking a seat at the table of cooperation and negotiation has led to opportunities for mutual understanding in the region. Now, with barriers to physical access changing because of climate, it may be necessary to once again consider whether it is possible to open new dialogues to the mutual benefit of all stakeholders.