

Oil and Ice:

Natural Resource Governance in the High Arctic

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BACKGROUND OF THIS STUDY

From June to August 2014 I completed a qualitative research project in western Greenland and eastern Nunavut. The objective of this project was to investigate the existing provisions in Greenland and Nunavut for community-based management and community engagement in oil and mineral development decision-making.

This paper outlines some of the findings of my research on the environmental, political, and economic context in which oil and mineral development takes place in Greenland and Nunavut. It commences by establishing the context of natural resource development in Arctic North America, including the negative impacts of centrally-planned mining projects in the mid-twentieth century. The introductory section also describes the current sense of opportunity in Arctic natural resource development, limited by the ongoing need for careful regulation and increased response capacity. The paper proceeds by describing Greenland's context for oil and mineral development, spurred by high infrastructure and the politics of devolution, but held back by questions of economic sustainability, especially the need to

protect the Greenlandic fish and shellfish industry. Nunavut's context stands in stark contrast. It holds far higher proven reserves of hydrocarbons, but underdeveloped infrastructure and a complex regulatory regime that empowers Inuit community engagement, but may discourage investment in resource development. The paper concludes with surprising revelations on the significance of climate change for Arctic resource development. There is also a small section dedicated to research methodology, technical challenges, and potential limitations of this study.

OIL AND MINERAL DEVELOPMENT IN GREENLAND AND NUNAVUT

The resource management relationship between Arctic communities, corporations, and governments has been controversial since the colonization of the North American Arctic.

Natural resource management is felt intimately in the North. This is especially true in isolated and/or Aboriginal communities that depend for survival on subsistence resources from their environment, and often hold strong cultural and spiritual bonds with local land and ecosystems.¹ Until the early- to mid- 20th century, isolated Arctic communities governed their local resources without outside interference, and did so in an arguably more sustainable

manner. These traditional resource management institutions have come into conflict today with territorial or state resource governance institutions, and with corporate resource management practices, especially in

"MELTING ICE AND WARMING CLIMATES MAKE ARCTIC RESOURCES MORE ACCESSIBLE FOR EXTRACTION... BUT SIMULTANEOUSLY PUT ARCTIC ECOLOGIES, HUMAN HEALTH, AND TRADITIONAL WAYS OF LIFE AT RISK."

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¹ Jessica M. Shadian, "Of Whales and Oil: Inuit Resource Governance and the Arctic Council," *Polar Record* (2013): 392.

comparatively new sectors such as oil and mineral development.

Oil and mineral development has historically caused negative environmental impacts in Greenland and Nunavut, affecting health and access to subsistence food resources in local communities.² At the same time, oil and mineral development represents an opportunity for communities in Greenland and Nunavut to raise incomes, improve relatively low levels of basic infrastructure, and devolve political control from southern state governments. Arctic communities stand to benefit from natural resource development, but only if development can be negotiated on the terms of Northerners. This may include local employment and co-ownership, co-management regimes, incorporation of traditional indigenous knowledge, strict controls on sensitive environments, and other initiatives.

Today, in the context of climate change, expanding technology, and nascent Arctic oil and mineral economies, conversations surrounding Arctic resource development are more relevant than ever. Melting ice and warming climates make Arctic resources more accessible for extraction in the mid- to long-term, but simultaneously put Arctic ecologies, human health, and traditional ways of life at risk.³ Crucial for communities are subsistence food stocks and living resource economies, which may suffer from climate changes and/or increased resource development. Arctic climate

change also damages community infrastructure (for example, through permafrost melt), compounding existing problems of inadequate housing and community services, and increasing the need for new sources of community income. Natural resource exploitation may alleviate some of the impacts of Arctic climate change and community challenges, but only if transparently discussed and carefully regulated.

GREENLAND: THE CONTEXT FOR OIL AND MINERAL DEVELOPMENT

Greenland has a large known quantity of hard minerals, and is expected to hold large quantities of oil and gas.⁴ Under ideal conditions, hard minerals could start to contribute significantly to Greenland's economy in 5-10 years, and oil in 20-50 years, while gas exploitation is expected to take much longer.⁵ In recent years, Danish, Greenlandic, and international media have portrayed Greenland's natural resource development as rapidly and dramatically evolving. In fact, mineral extraction has been conducted in Greenland since the 1840s, often on a large scale.⁶ A total of 14 exploratory oil and gas wells have been drilled in Greenlandic territorial waters, all of them in Baffin Bay, between Greenland and Nunavut. However, no drilling has been conducted since 2011. Furthermore, no company has yet declared a commercially viable find, and thus no off-shore hydrocarbon exploitation has yet taken place in Greenlandic waters.

Greenlandic resource management has changed significantly in recent decades. Most importantly, in 1979 Greenland first

² Arn Keeling and John Sandlos, "Environmental Justice Goes Underground? Historical Notes from Canada's Northern Mining Frontier," *Environmental Justice* (2009): 117; Frank Sejersen, "Efterforskning og udnyttelse af råstoffer i Grønland i historisk perspektiv," Copenhagen: Ilisimatusarfik & University of Copenhagen, January 2014; Anders Mosbech, "Miljøeffekter af råstofaktiviteter i Grønland - Hvad er de mulige effekter på natur og miljø, og hvordan kan påvirkningen bedst reguleres?," Roskilde: Ilisimatusarfik, University of Copenhagen, January 2014.

³ Minik Rosing, "Den geologiske baggrund for Grønlands naturressourcer," Copenhagen: Ilisimatusarfik, University of Copenhagen, January 2014.

⁴ Ibid.

⁵ Committee for Greenlandic Mineral Resources to the Benefit of Society, *To the Benefit of Greenland* (Nuussuaq & Copenhagen: Ilisimatusarfik, University of Greenland & University of Copenhagen, 2014), 11.

⁶ Jonas Nielsen, interview by Graham May. *Interview with a previous employee of Black Angel Mine* (July 14, 2014).

experimented in home-rule, and in 2009, full self-rule was established through the *Selvstyrelov* (Greenland Self-Rule Act). Under the Self-Rule Act, the Government of Greenland has authority over most issues of national interest, including most social services, judicial affairs, and natural resource management. Importantly, more than half of natural resource royalties are collected by the Greenlandic government.⁷ Denmark maintains control over matters of defence and foreign affairs. Greenland could theoretically establish full independence at any time (the Self-Rule Act includes this power), but doing so would eliminate the 3.5 billion kroner block grant received annually from the Danish government (besides forgoing Danish support in security and foreign policy matters).⁸ This block grant currently comprises approximately one quarter of Greenland's gross domestic product (GDP). Thus, to achieve independence from Denmark while maintaining the social services enjoyed by Greenlanders, Greenland has a strong political incentive to stimulate its economy, especially through development of its mineral and petroleum resources. It is yet to be seen whether Greenlandic self-rule will trigger a natural resource rush on the island, but the implications, if so, are large for Greenlandic society.⁹

Greenland has a small population for its enormous territory (approximately 55,000 people in more than 2,000,000 km²). This population is shrinking due to decreased birth rates and emigration. Given these demographic changes and Greenland's high social welfare services, estimates project that, if the current economy remains unchanged, Greenland will

suffer large and growing budget shortfalls after 2016.¹⁰

Opinion is divided on whether the fishing and shellfish industries, currently 94% of Greenland's exports, can be sustainably increased. Harvest quotas set for the industry by the Greenlandic government are already at the maximum sustainable yield, and probably cannot be increased in the long-term.¹¹ Some argue, however, that Greenland could increase revenue by increasing value added before export – for example, by processing fish and seafood into finished products before shipping them to foreign markets.¹² Given Greenland's high utility and labour costs, however, this would be challenging for the fisheries industry, and might reduce the extraction industry itself. Companies in high-cost areas like Greenland typically attempt to reduce production costs through automation, limiting local processing, or conducting administrative work at another location.¹³ This is a hotly-contested topic in Greenland.

Whether or not Greenlandic fisheries can be expanded, special attention must be paid to conserving living resources (such as fisheries). A prominent recent Greenlandic study put forward, as a general rule-of-thumb, that the value of revenue from sustainable use of living resources is 20 times greater than that from

⁷ Committee for Greenlandic Mineral Resources to the Benefit of Society, *To the Benefit of Greenland*, 11.

⁸ Anonymous, interview by Graham May, *Interview with an Employee of the Ministry of Mining and Industry, Government of Greenland* (July 1, 2014).

⁹ Committee for Greenlandic Mineral Resources to the Benefit of Society, *To the Benefit of Greenland*, 6.

¹⁰ Ibid., 10

¹¹ Ibid.; Olsen Hans Lars, interview by Graham May, *Interview with the factory manager of Royal Greenland Ilulissat* (July 10, 2014).

¹² Naja Steenholdt, interview by Graham May, *Interview with Naja Steenholdt, University of Greenland* (July 1, 2014); Pitangnguaq Tittussen, interview by Graham May, *Interview with the chairman of Friends on Nuuk Fjord* (July 1, 2014).

¹³ Odd Jarl Borch, *Greenlandic Natural Resources - How to Improve Regional Value Creation and Ripple Effects* (Bodo: University of Copenhagen; Ilisimatusearfik, 2013); Gerth Jakobsen, interview by Graham May, *Interview with the Chairman of the Upernavik Enterprise Board* (July 22, 2014).

exploitation of non-renewable resources.¹⁴ Furthermore, unlike mineral and petroleum, living resources can be exploited indefinitely, and their export does not constitute a net decrease in a country's wealth. For these reasons, in discussion around mineral and petroleum development, utmost care must be made to not disturb Greenland's fisheries and seafood industry.

Although mineral and petroleum development in Greenland has great potential, it is difficult to translate these resource deposits into potential societal revenue or benefit.¹⁵ The mineral and petroleum industries are characterized by uncertainty – about quantity and quality of resources, international prices, and logistics and technology change. According to a recent study published by a group of experts, mineral and petroleum development are relatively unlikely to support a self-sustaining Greenlandic economy. The experts failed to identify a single country in the world that has successfully developed a stable economy based exclusively on mining and petroleum.¹⁶ Rather, they can contribute positively to economic diversification in Greenland, as they arguably have done in Canada.¹⁷

Natural resource development in Greenland has been seen as a force for Greenlandic independence since the Second World War during which Denmark was occupied by Germany, and Greenland was occupied by the United States.¹⁸ During this time, Greenland was able to buy goods from the United States

and Canada by selling cryolite. Although Greenland was not entirely financially self-supporting during this time, the success led to a shift in attitudes about Greenland's ability to support itself financially.¹⁹ In more recent years, a fierce debate on Greenlandic resource use has raged, sparking discussions on potential Greenlandic independence, the extent to which natural resources involve a security policy aspect, and whether Denmark should take a more proactive role in developing Greenland's resources.²⁰

An interesting modern example of the centrality of natural resource management to Greenlandic politics is uranium development. As part of the Kingdom of Denmark, Greenland is bound by the Non-Proliferation Treaty, which forbids the extraction of radioactive elements such as uranium. If uranium is considered a security or foreign policy issue, it falls under the purview of the Kingdom, and is prohibited through Copenhagen. If, instead, it is considered the same way as other mineral natural resources, it falls within Greenland's purview, legislated through Nuuk.²¹ Potential development of this mineral has unveiled deep divisions about the extent to which Greenland has self-determination rights. Fortunately, the problem does not pose immediate concern: Greenland contains less than two percent of the world's supply of uranium, and global demand can currently be satisfied elsewhere.

Greenland's relationship with Denmark, although controversial, may provide the economic stabilization necessary to avoid characteristic boom-and-bust of many primary resource industries. Population size and infrastructure construction in Alaska is famously dictated by oil and mineral

¹⁴ Committee for Greenlandic Mineral Resources to the Benefit of Society, *To the Benefit of Greenland*, 27.

¹⁵ *Ibid.*, 11.

¹⁶ Niels Ole Qvist, "Here is Greenland's Salvation," *Greenland Oil and Minerals* (2014), 40.

¹⁷ Rosing, "Den geologiske baggrund for Grønlands naturressourcer"; Søren Bo Nielsen, *Exploitation of Natural Resources and the Public Sector in Greenland*. (Copenhagen: University of Copenhagen; Ilisimatusarfik, 2013).

¹⁸ Committee for Greenlandic Mineral Resources to the Benefit of Society, *To the Benefit of Greenland*, 6.

¹⁹ Sejersen, "Efterforskning og udnyttelse af råstoffer i Grønland i historisk perspektiv."

²⁰ Committee for Greenlandic Mineral Resources to the Benefit of Society, *To the Benefit of Greenland*, 4.

²¹ *Ibid.*, 15.

production. When development ceases, an exodus ensues, and the now-excessive infrastructure cannot be supported.²² With a quarter of its annual budget currently subsidized by Denmark, Greenland may escape the stretch and slack of industry fluctuations. Greenland also has free, unrestricted, and in some cases preferential access to Danish education, which can help build capacity and skills for a sustainable home-grown economy.

Before oil or mineral development can proceed in Greenland, however, many experts claim that more information is needed about potential environmental impacts.²³ Information is lacking on the cumulative and transboundary impacts of resource extraction in the comparatively undeveloped Arctic environment. Combined with the impacts of climate change, which takes place in the Arctic at roughly twice the global average speed, the unpredictability of resource extraction poses significant risks to Arctic ecosystem health, and thus to local subsistence and living resource economies.²⁴ In the past century, mines have caused huge environmental damage in Greenland, although this has been curbed in recent years.²⁵ By far the largest environmental risk of oil development is a large marine spill. There are no documented effective methods for combating oil spills in ice and 24-hour darkness.²⁶ As there are no long-distance

road, rail, or pipeline networks in Greenland, all oil must be transported by sea at every stage.

There is also a stated need to strengthen Greenlandic civil society, including more NGO participation and more robust local stakeholder engagement. Such a civil society is needed to engage in informed dialogue with decision-makers and resource development companies.²⁷ In November 2013, several high-profile Greenlandic NGOs voluntarily joined forces in Greenland's first NGO coalition. This organization aims to stimulate debate and facilitate information flow on potential resource development project details and impacts.²⁸

To my surprise, in my research across Greenland and Nunavut, I encountered only one local Environmental Non-Governmental Organization (ENGO) (although several international groups operate in the Arctic with main offices elsewhere, such as the WWF). According to the chairman of this lonely local ENGO, history is a major barrier for environmental organizations in Greenland and Nunavut. Greenpeace's anti-sealing campaign of the 1970s is commonly believed to have destroyed the international market for Inuit sealskin products, thus harming the livelihoods of many Inuit hunters and sealskin craft producers. This event left many Northerners with a profound scepticism of all ENGOs, even those who dissociate themselves from Greenpeace and champion Inuit subsistence hunting. New environmental organizations have to overcome the stigma that they are "pandering with Greenpeace." This may be a major cause of the low number of organized ENGOs across Arctic North America.²⁹

²² Ibid., 26.

²³ Ibid., 37; Mosbech, "Miljøeffekter af råstofaktiviteter i Grønland - Hvad er de mulige effekter på natur og miljø, og hvordan kan påvirkningen bedst reguleres?"

²⁴ Arctic Council, "Arctic Climate Impact Assessment: Impacts of a Warming Arctic," 2004.

²⁵ Mosbech, "Miljøeffekter af råstofaktiviteter i Grønland - Hvad er de mulige effekter på natur og miljø, og hvordan kan påvirkningen bedst reguleres?"; Aksel Cortzen-Blytman, interview by Graham May, *Interview with a Tourism and Business Consultant of Qaatsuiastup Municipality Department of Industry and Tourism, Ilulissat Office* (July 9, 2014).

²⁶ Mosbech, "Miljøeffekter af råstofaktiviteter i Grønland - Hvad er de mulige effekter på natur og miljø, og hvordan kan påvirkningen bedst reguleres?"

²⁷ Anita Hoffer, interview by Graham May, *Interview with the chairman of Transparency Greenland* (June 30, 2014); Tittussen, *Interview with the chairman of Friends of Nuuk Fjord*.

²⁸ WWF Denmark, "NGO-koalition kræver længere høring," December 2, 2013.

²⁹ Tittussen, *Interview with the chairman of Friends of Nuuk Fjord*.

NUNAVUT: THE CONTEXT FOR OIL AND MINERAL DEVELOPMENT

“Currently there is no offshore oil or gas drilling in the Canadian Arctic... but that may soon change,” says Martin von Mirbach, past WWF Canadian Arctic Director.³⁰ Lloyd’s of London predicts that 100 billion USD will be poured into Arctic oil exploration in the next decade.³¹ Like Greenland, Nunavut has a history of mineral development, including one active mine and several large mines in advanced stages of licencing.³² Unlike Greenland, Nunavut has large proven reserves of commercially viable oil and natural gas that have been exploited in the past, although none are currently being extracted.³³

As a pre-devolution Canadian territory, the Government of Nunavut does not have purview over minerals or petroleum regulation or revenue collection. Instead, resource development on crown land in Nunavut is regulated by the Federal government. Unlike Greenland, Nunavut also has a complex system of Inuit Associations, the owners of Inuit Owned Land (IOL) and implementers of the Nunavut Land Claims Agreement. Three Regional and one Territorial Inuit associations share responsibility over IOL in the three regions of Nunavut.³⁴ Companies

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hoping to develop resources in Nunavut must negotiate with both regional and territorial Inuit Associations, for example, by negotiating an Inuit Impact Benefit Agreement with the local Regional Inuit Association.³⁵ In many ways, the Inuit organizations have more power than the territorial government in Nunavut resource management governance.

Requiring companies to negotiate with Federal government, Regional and Territorial Inuit Associations, and to a lesser extent, Territorial government, may be a disincentive for companies to invest in resource extraction in Nunavut. This is in contrast to Greenland, where there are no Aboriginal associations with legal purview over resource development regulation, and the bulk of permits and regulation are centralized through the federal (Greenlandic) government.³⁶

Nunavut does not have the same well-developed fish and seafood industry as Greenland.³⁷ One reason for this may be the comparatively higher level of infrastructural development in Greenland. This was evident from the perspective of our sailboat, arriving at the harbour of communities in Greenland and Nunavut. In Greenlandic communities, even those of small size, we would always tie up at the community dock, sheltered from most winds, with access to paved roads, sometimes even with electricity and running water. Nunavut communities of comparable size, in contrast, offered no dock to tie up, no electricity or water, and rarely paved roads.

³⁰ Kevin McGwin, Kevin, "There's no time like the future," *The Arctic Journal* (2014).

³¹ Ibid.

³² Anonymous, interview by Graham May, *Interview with an Employee of the Government of Nunavut* (August 12, 2014).

³³ Peter Frampton, Linda Ham, and Diane Lapierre, interview by Graham May, *Interview at the Department of Economic Development and Transport, Government of Nunavut* (August 1, 2014).

³⁴ Ibid.

³⁵ Rosanne D'Orazio, interview by Graham May, *Interview with an employee of the Qikitan Inuit Association* (August 13, 2014).

³⁶ Jim Bell, "Nunavut officials envy Greenland oil-gas model," *Nunatsiaq News*, February 8, 2010.

³⁷ Anonymous, *Interview with an Employee of the Government of Nunavut*.

Even in Iqaluit, the capital city, there is no dock or tie-up space: landing boats must be hauled up a breakwater, or beached on the large tides. Nunavut's dependence on sea and air travel, combined with a lack of maritime transport infrastructure, makes it difficult to meet basic community needs, including safe transportation.³⁸

Because it is not economically dependent on fish and seafood, Nunavut might be seen to risk less in the case of a pollution event such as an offshore oil spill. Arguably more important than the wage economy, however, is the traditional subsistence economy in Nunavut and Greenland. Large groups of the population in Nunavut and Greenland sustain themselves from hunted country food – especially fish and marine mammals.³⁹ This subsistence economy helps northern communities to combat poverty and food insecurity far above the Canadian average.⁴⁰ Because of the unique risks of a spill in the Arctic (such as ice and darkness for much of the year), such a pollution event might have large and transboundary ecological impacts. Thus, offshore oil development is a risky economic investment for both Greenland and Nunavut.

If petroleum extraction were to re-commence in Nunavut, it is recommended that there be a large increase in response capacity for potential oil spill disasters. In the words of a recent Canadian academic report, Canada's federal government has a "worryingly limited capacity to mitigate or respond to an oil spill should it occur in the extremely harsh, dangerous, yet highly sensitive

Arctic environment."⁴¹ Especially in the pervasive context of the *Deepwater Horizon* oil spill disaster, many locals in Greenland and Nunavut express fears of the ecological risks of Arctic oil development.⁴²

Some important regulations on Arctic offshore oil development exist, although they may be at risk. The Government of Canada's two-rig relief well policy is an international best practice for drilling in Arctic waters, although the government faces industry pressure to remove it. This requirement obliges offshore drilling operations to be supported with two drilling rigs, to ensure that one can provide relief well drilling in the event that a blowout occurs while drilling with the other rig. The two-rig policy also requires that drilling must stop with sufficient time to allow emergency drilling of a relief well before ice and harsh Arctic weather prevents drilling at sea. This best practice is in place in Greenland and Alaska. In 2013, Canada's National Energy Board (NEB) reviewed Canada's Arctic offshore oil drilling requirements following the *Deepwater Horizon* blowout in the Gulf of Mexico, entitled, "the Arctic Review."⁴³ The Arctic Review reaffirmed Canada's commitment to the two-rig relief well policy, despite substantial lobbying pressure to relieve the requirement from Chevron,⁴⁴ BP,⁴⁵ Imperial Oil,⁴⁶ and ConocoPhillips.⁴⁷

³⁸ John Higginbotham and Marina Grosu, "The Northwest Territories and Arctic Maritime Development in the Beaufort Area," *Policy Brief* (Yellowknife, NWT: CIGI, 2014).

³⁹ Anonymous, *Interview with an Employee of the Government of Nunavut*.

⁴⁰ Katriina O'Kane, "Youth Arctic Coalition Foundation Paper: Food Security in the Arctic," Ottawa, 2014.

⁴¹ Higginbotham and Grosu, "The Northwest Territories and Arctic Maritime Development in the Beaufort Area."

⁴² Anonymous, *Interview with an Employee of the Government of Nunavut*; Lars, *Interview with the factory manager of Royal Greenland Ilulissat*; Cortzen-Blytman, *Interview with a Tourism and Business Consultant of Qaatsustup Municipality Department of Industry and Tourism, Ilulissat Office*.

⁴³ National Energy Board, "Backgrounder - National Energy Board Report on the Arctic Offshore Drilling Review," accessed May 2013, <http://www.neb-one.gc.ca/clf-nsi/rthnb/ppletnsbfrthnb/rcteffshdrllngrvw/fnlrprt2011/bc kgndr-eng.html>.

⁴⁴ Chevron Canada Limited, "Submission to the National Energy Board Policy Hearing for Same Season Relief

Canada's National Energy Board is currently considering waiving the requirement for two proposed drilling projects in the Beaufort Sea.⁴⁸ This move would be in conflict with findings from an independent study contracted by the Inuit Circumpolar Council in Greenland, which found that not planning for same-season relief well capacity risked that "a well blowout could continue unabated during the entire winter season" (up to nine months long). According to the study, this would cause unacceptable damage to the marine environment, including commercial fishing and subsistence hunting stocks.⁴⁹

One interesting revelation in my research concerned climate change. One mainstream discourse asserts that climate change is already rapidly changing the physical realities of

resource development in the Greenlandic and eastern Canadian Arctic. I was of that opinion before investigating the issue in Greenland and Nunavut. In fact, though climate change is having a pronounced and increasing impact on Arctic ecosystems and geography (including increased water temperatures, decreased sea ice thickness and extent, and receding glaciers), the impacts for resource development are small and often mixed.⁵⁰ Receding glaciers, for example, may produce more icebergs, making navigation more challenging in areas where all large-scale transportation must be made by sea.⁵¹ Decreased sea ice and ice cap coverage, although significant for ecosystems and communities, often are of only small significance for mineral and petroleum development, since the average ice extent moves over a course of decades, which cannot be reliably factored into short- or medium-term business plans.

For these reasons, the geophysical impacts of climate change have done little to increase current resource development in Nunavut and Greenland. On several occasions, however, Northerners raised the point that increased media coverage of climate change in the Arctic may bring more foreign interest and investment into resource development in the Arctic.⁵² This publicity angle, combined with improved technology for resource extraction in extreme Arctic environments and depleted supplies of resources elsewhere, has increased resource development in the Arctic, even if the full

Well Capability for Drilling in the Beaufort Sea," March 2010.

⁴⁵ BP Exploration Operating Company Limited, "National Energy Board, Hearing Order MH-1-2010, Review of Policy on Same Season Relief Well Capability for Drilling in the Beaufort Sea," March 2010.

⁴⁶ Imperial Oil Resources Ventures Limited, "Submission Regarding the Relief Well Policy for Offshore Drilling in Arctic Waters," Calgary, March 2010.

⁴⁷ ConocoPhillips Canada, "Letter to the Canadian National Energy Board, Re: ConocoPhillips' Submission in accordance with NEB Hearing Order MH-1-2010 Same Season Relief Well Capability for Drilling in the Beaufort Sea (NEB File OF-EP-Well 05)," March 19, 2010.

⁴⁸ National Energy Board, "Imperial Oil Resources Ventures Limited - Same Season Relief Well Technical Proceeding," *The National Energy Board of Canada* (2014), accessed September 16, 2014, <http://www.neb-one.gc.ca/clf-nsi/rthnb/pplctnsbfrthnb/mprlbftrsdrlng/mprlbftrsdrlng-eng.html>; National Energy Board, "Chevron Canada Limited - Exploration Licence EL 481 - Same Season Relief Well Technical Proceeding," *The National Energy Board of Canada* (2014), accessed September 16, 2014, <http://www.neb-one.gc.ca/clf-nsi/rthnb/pplctnsbfrthnb/chvmcndc-l481/chvmcndc-l481-eng.html>.

⁴⁹ ICC Greenland, accessed July 2014, <http://inuit.org/en/environment/offshore-oil-exploration-and-exploitation.html>; Harvey Consulting, LLC, "Offshore Drilling in West Greenland, Relief Well Planning," Eagle River, Alaska, 2013.

⁵⁰ Pavia Nielsen, interview by Graham May, *Interview with a climate change specialist of Qaatsuitsup Municipality, Greenland* (July 9, 2014).

⁵¹ Greenlandic Parliament Committee Secretaries, "Greenlandic Parliamentary Committees & Natural Resource Management," July 2, 2014; Nielsen, *Interview with a previous employee of Black Angel Mine*.

⁵² Jesper Larsen, interview by Graham May, *Interview with the head of section of Greenland Mineral Licence and Safety Authority* (July 1, 2014); Cortzen-Blytman, *Interview with a Tourism and Business Consultant of Qaatsuitsup Municipality Department of Industry and Tourism, Ilulissat Office*.

significance of a warming climate is still decades away.

CONCLUSION

This paper documents findings from a research project, investigating community impacts of oil and mineral development for Inuit communities in Greenland and Nunavut. It highlights contrasts between these jurisdictions, such as the high level of infrastructure and devolved political autonomy which facilitates resource development in Greenland, or the decentralized Land Claim mechanisms that effectively distribute power to Inuit in Nunavut, while creating a complex overall regulatory environment. The paper also pays service to themes consistent in both jurisdictions, such as the need for increased response capacity and careful regulation to protect the Arctic environment from the unprecedented damage of an oil spill. Finally, this paper includes several themes that I found interesting, and perhaps educational to an audience of non-Northerners, such as the (limited) role of climate change and environmental NGOs in Arctic natural resource development. Arctic natural resource development is likely to increase significantly in coming decades, as technology improves, resource grow scarcer, Arctic infrastructure entrenches, and climate change has a more pronounced effect. If the benefits of natural resource development for Northerners are to outweigh the costs, more discussion and careful thought is needed.

RESEARCH METHODOLOGY

I conducted qualitative interviews with public figures and civil servants in Greenland and Nunavut, posing similar questions in each interview. Questions centered on the mechanisms for local engagement and consultation in oil and mineral development decisions. I also conducted a literature review of relevant government policies, recent studies on

oil and mineral development in Greenland and Nunavut (including Environmental Impact Assessments, Social Impact Assessments, and Impact Benefit Agreements), and several theoretical frameworks of resource development.

As I do not speak Greenlandic, Danish, or Inuktitut, and only employed the service of a translator on one occasion, my interviews were constrained to English speakers. This was a more significant barrier in Greenland, where English is typically only spoken by members of the wealthy or university-educated elite. By constraining who I could interview, this factor may have biased my results.

The platform for the majority of my research was *Arctic Tern I*, a high latitude sloop on a five-year research mission in the western Greenlandic and eastern Canadian Arctic. Because the crew of *Arctic Tern I* had travelled to most of the communities I visited several times before, I was able to use their networks in these communities to recruit knowledge holders and potential interview participants.