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Advancing Canada's Arctic and Northern Policy Framework

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ABSTRACT

The effects of global climate change are concentrating exponentially at the poles, fundamentally challenging and changing life in Canada's Inuit Nunangat. Looking beyond Canada's borders, these same changes are generating international instability and uncertainty, increasing the probability of regional confrontation and conflict. While the Government of Canada (GC) issued a nascent northern development policy in 2019 that endeavoured to synchronize whole-of-government efforts with Indigenous knowledge, it failed to establish the essential project management framework to achieve its objectives.

This study will argue that Canada must advance its Arctic and Northern Policy Framework (ANPF) through the construction of the multi-purpose Northern Operational Support Hub (NOSH) system to enable inter-agency operations and pre-empt imminent foreign and environmental threats to Canada's northern security. It will demonstrate that the Department of National Defence (DND) stands poised to assist in the development of a whole-of-government solution that meets all eight of the ANPF objectives. It will highlight the environmental, economic, foreign and social obstacles that the NOSH will be required to overcome and provide an improved ANPF governance model to develop and manage this system. Most importantly, this paper will demonstrate that the current situational unknowns do not impede the planning and preparation of the infrastructure required to secure Canada's north in a time of increasing global tensions. While the NOSH initiative has received some socialization outside of DND, it remains purely a conceptual initiative. As such, any locations, financial figures or proposed construction timeframes represent what the NOSH *could* become, and should not be considered definitive or final. Thus, the intent of this study is to enhance dialogue and collaboration.

INTRODUCTION

The Catalyst for Change

The Arctic has captured the imaginations and passions of people the world over for generations. Its forbidding and unforgiving environment represents one of the few remaining untamed frontiers on earth. Geographically defined as the area under the Arctic Circle, it constitutes approximately four million people from eight different nations, situated around the central Arctic Ocean.[1] For Canadians though, the Arctic is far more than just an area on a map. Canada's historic Arctic connection is a source of national identity and pride, the embodiment of the freedom, natural power and pristine beauty that Canadians associate with their nation. While most Canadians will never see or experience life in the northern reaches of Canada, it retains a prominent, almost unassailable place in the national psyche. Government of Canada (GC) policies dating back to the 1950s have reinforced the nation's inalienable ownership and commitment to its northern extremities.[2] More recently, government policy has expanded the interpretation of what constitutes Canada's far north to include the Territories in full, and northern Ontario and Quebec, better recognizing the cultural and environmental distinction between north and south.[3]

Within this rugged and often harsh environment, the Inuit peoples have developed rich cultures and a unique way of life that balances their needs against the sustainability

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[1] Joan Nymand Larsen and Gail Fondahl, *Arctic Human Development Report: Regional Processes and Global Linkages* (Denmark: Nordic Council of Ministers, 2014), 102.
[2] Adam Lajeunesse and Rob Huebert, "Preparing for the Next Arctic Sovereignty Crisis: The Northwest Passage in the Age of Donald Trump," *International Journal* 74, no. 2 (2019): 227.
[3] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic and Northern Policy Framework* (Ottawa: Government of Canada), last modified 18 November 2019, https://rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587#s0.

of the natural world. Known holistically as the Inuit Nunangat,[4] the Indigenous peoples have worked with the GC for decades, patiently bringing awareness to northern issues and bearing the burden of being "human flagpoles" without access to the social and economic opportunities afforded in the south.[5] Despite being the mainstay of Canada's claim to the north and the subject of emotionally-charged national rhetoric, Canada's northern peoples have long suffered from a conspicuous paucity of social and infrastructure investment. While the burden of maintaining Canada's Arctic possessions should fall evenly across the national population, it has instead disproportionately fallen to the people of the north to carry the human cost of the government's ambitions.[6] As a result, for centuries, the Arctic's remote and deceptively complex ecosystem has remained relatively untouched by both nature and humanity, seemingly frozen in the ice and snow that characterize it. This ecosystem, however, is now thawing rapidly.

Climate change represents an existential threat to life on this planet. From the crops that sustain humankind to the rules-based global order that regulates the actions of nations, the world is coming under increasing pressure as the environmental conditions underpinning food chains degrade. Though climate change is a global threat, the speed and ferocity of its effects differ by region. A growing body of research has highlighted that its effects in the Arctic will be particularly severe, with the surface temperature of the

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[4] *Ibid*.
[5] House of Commons Standing Committee on Foreign Affairs and International Development, *Report on Nation-Building at Home, Vigilance Beyond: Preparing For the Coming Decades in The Arctic* (Ottawa: Government of Canada, April 2019), 42; John Duncan, "Government of Canada Apologizes for Relocation of Inuit Families to the High Arctic," last modified 18 August 2010, https://www.canada.ca/en/news/archive/2010/08/government-canada-apologizes-relocation-inuit-families-high-arctic.html. This was an apology by the Minister of (then) Indian and Northern Affairs Canada to the Inuit families forcibly relocated during the 1950s to enhance Canada's northern claims.
[6] National Aboriginal Economic Development Board, *Recommendations on Northern Infrastructure to Support Economic Development* (Gatineau, Quebec: Government of Canada, January 2016), 2-3, 9, 16.

Arctic presently warming at three times the global average (Figure 1).[7] Worse, the melting of multi-year sea ice, decreasing snow cover, and the release of methane gas from thawing soils exponentially increases these cascading impacts on the structure and functionality of the northern ecosystem.[8] This will result in Canada's north being 5 to 11°C warmer by 2100 and receiving 20 to 60% more precipitation.[9] These changes are already adversely affecting the regional flora and fauna and affecting the livelihood and culture of the people who call it home.

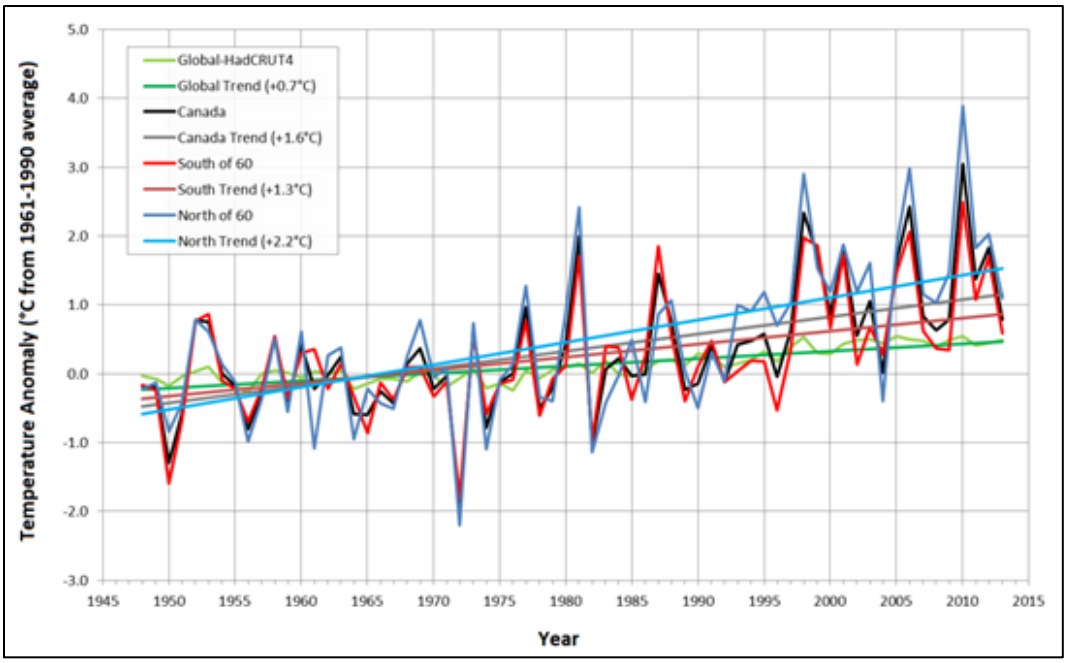

Figure 1: Annually Intensifying Global Temperature Trends

Source: Environment and Climate Change Canada, *Climate data and scenarios for Canada: Synthesis of recent observation and modelling results* (Ottawa: Government of Canada, 2016), 3.

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[7] Environment and Climate Change Canada, *2021-22 Departmental Plan* (Ottawa: Government of Canada, 2021), 10; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: Key Trends and Impacts* (Tromsø, Norway: Arctic Council, 2021), 2; Environment and Climate Change Canada, *Climate data and scenarios for Canada: Synthesis of recent observation and modelling results* (Ottawa: Government of Canada, 2016), 3.

[8] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 12-13.

[9] Environment and Climate Change Canada, *Climate data and scenarios for Canada: . . .*, 12, 18.

Regional warming will enhance maritime traffic (Figure 2), and present the international community with rich new opportunities to supplement decreasing and exhausted material supplies with the north's abundant natural resources. However, the potential for environmental abuse, economic exploitation and violently polarized social perspectives are high. When considered holistically, these environmental, social and economic factors stress the need for a Canadian northern vision that balances stewardship with prosperity in the face of biological degradation across the Inuit Nunangat.[10] Such a vision must also recognize Canada's pressing duty to work with national partners and international allies to politically stabilize and safeguard the north, while concurrently protecting Indigenous peoples from the accruing natural consequences of climate change already set in motion.[11] In effect, climate change is the catalyst that *must* change Canada's historic inattention to its northern regions.

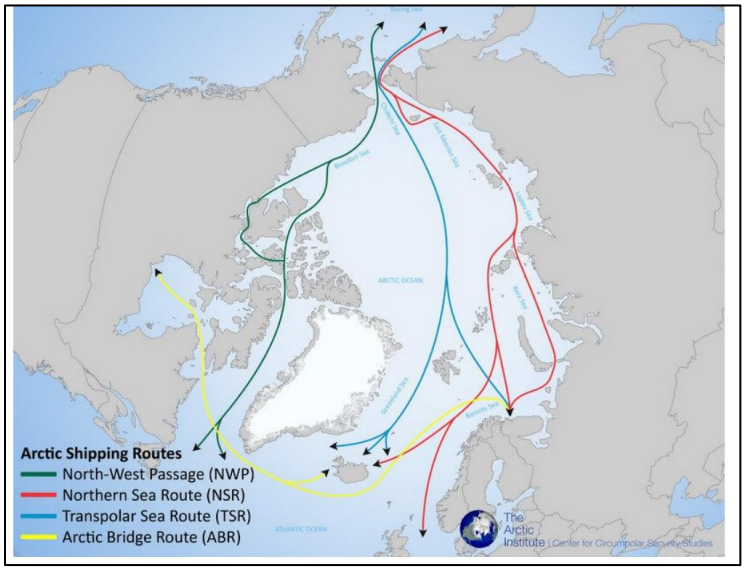

Figure 2: Arctic Shipping Routes

[10] Department of National Defence, *Strong Secure Engaged: Canada's National Defence Policy* (Ottawa: Government of Canada, 2017), 57; Arctic Monitoring and Assessment Program, *Biological Effects of Contaminants on Arctic Wildlife & Fish: Key Messages* (Tromsø, Norway: Arctic Council, 2018), 5.
[11] Environment and Climate Change Canada, *2021-22 Departmental Plan, . . .,* 10.

Source: Ørts Hansen, Grønsedt, Lindstrøm Graversen and Hendriksen, *Arctic Shipping – Commercial Opportunities and Challenges* (Copenhagen, Denmark: Copenhagen Business School, January 2016), pg 11.

Canada's Arctic and Northern Policy Framework

In response to this challenge, the 2019 Canadian House of Commons Standing Committee on Foreign Affairs and International Development identified that the somewhat vague and dated notion of northern "sovereignty" no longer captures the crucial issues facing Canada. Instead, they posited that the threats to Canada's north are best expressed in terms of health, prosperity, resource stewardship, international stability and defence.[12] This refreshed perspective coincided with the release of Canada's Arctic and Northern Policy Framework (ANPF); a tentative roadmap to advance the nation's northern agenda.[13] The ANPF recognizes that while climate change itself is not a direct cause for conflict, it creates a host of inter-related stressors that cause instability in the rules-based global order that adversaries may exploit.[14] Thus, domestic northern ambitions must integrate into Canada's foreign policy objectives.

Building on Minister (now Governor General) Mary Simon's 2016 Interim Report on the Shared Arctic Leadership Model, the ANPF details eight national priorities for the north that seek to address health, prosperity, stability and reconciliation in the context of

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[12] House of Commons Standing Committee on Foreign Affairs and International Development, 117.
[13] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . ..
[14] Premier Sandy Silver states "While we welcome Canada's plans to modernize NORAD, I emphasized the need to bolster the Canadian Rangers – the first line of defense in the North. There is also consensus among Northern Premiers that Arctic sovereignty and security are enhanced by strengthening the resiliency of our people and our communities … [through] … investments in energy, climate, transportation, housing, health care, and infrastructure to strengthen territorial economies, create sustainable services and further foster the health and resiliency of Northerners." Sandy Silver, "Northern Premiers meet with Prime Minister Trudeau," *Government of* Yukon, 4 April 2022, https://yukon.ca/en/news/northern-premiers-meet-prime-minister-trudeau; Chad M. Briggs, "Climate Change and Hybrid Warfare Strategies," *Journal of Strategic Security* 13, no. 4 (2020): 49.

climate change.[15] These priorities produce eight inter-related goals that guide northern development within the three broad categories of regional, national, and international (Figure 3).[16] Viewed holistically, the overarching intent of ANPF is to harmonize Canada's employment of diverse national power elements in the north, and articulate a decision-making framework to subordinate departments to guide their future operations.

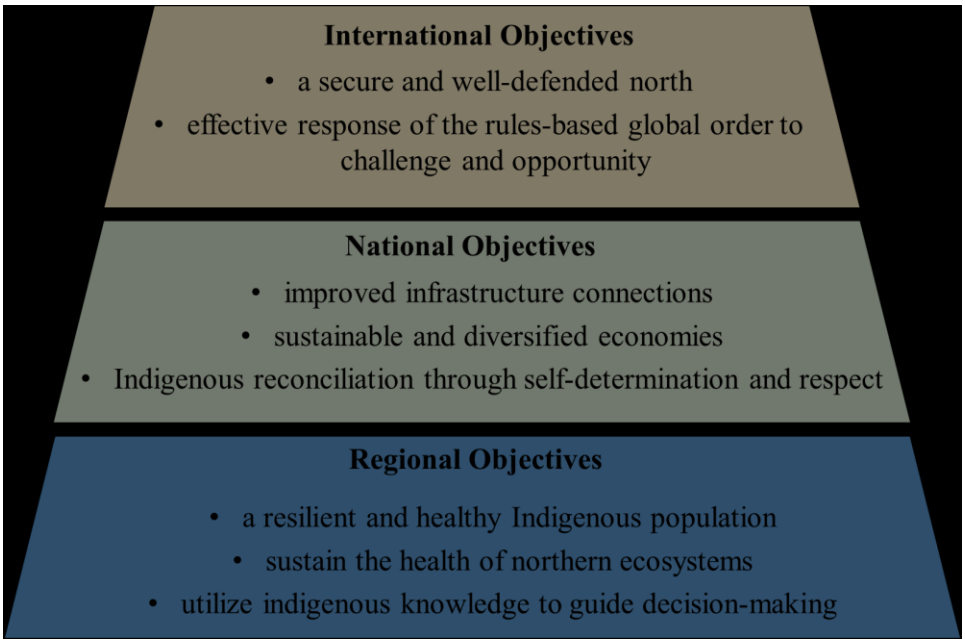

Figure 3: Categorized ANPF Objectives

Source: Author's design from ANPF.

Regrettably, the ANPF has been rightly criticized as a hastily released "wave of words" in the lead-up to an election that offers no practical timeline, milestones or governance structure.[17] Indeed, if viewed as a *fait accompli*, the document provides little substance to operationalize the national strategic vision, or provide stakeholders with the

[15] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . ..*
[16] ANPF does not divide the objectives into three groups, this is the author's interpretation to better understand and frame the problem of competing objective outcomes.
[17] Peter Kikkert and P. Whitney Lackenbauer, "Briefing Note: Canada's Arctic and Northern Policy Framework: A roadmap for the future?" *Arctic Yearbook 2019*, Briefing Notes and Commentaries, n.d., 1.

direction required to navigate the myriad of domestic and international issues they will face. Indeed, no single departmental mandate or central policy can hope to address the varied requirements of the north.[18] Rather, the ANPF is better viewed as the GC's call to solicit projects and initiatives from departments for alignment and funding within this broader strategic framework. Instead of a *fait accompli*, the ANPF provides the foundation to unite the complex mosaic of government departments, Indigenous leaders, scientists and academia under a single banner, and demands that northern development respect Inuit customs and empower local communities.[19]

As a subordinate department, DND has an established legacy of conducting and facilitating northern operations on behalf of the GC, and manages the government's largest infrastructure and equipment portfolios.[20] Further, throughout the COVID-19 pandemic, DND demonstrated its national-level planning capabilities and capacity to readily integrate with other government departments (OGDs).[21] As such, DND is well suited to support, and were necessary lead, elements of ANPF achievement in support of OGDs. This study takes the position that the ANPF represents an appeal from the GC to

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[18] Department of National Defence, *Strong Secure Engaged: . . .*, 79.
[19] *Ibid*; Kikkert and Lackenbauer, 1–2.
[20] Department of National Defence, "Joint Task Force North," last modified 7 April 2018, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/conduct/regional-task-force/north.html. The Canadian Armed Forces (CAF) N-Series operations have mandated scientific research components, as well as Canadian Coast Guard and Transport Canada participation; Polar Continental Shelf Program, *Polar Continental Shelf Program: Science Report* 2019 (Ottawa: Government of Canada, 2020), 12-13. DND works in tandem with ECCC in locations like Resolute Bay and the Eureka Weather Station on Ellesmere Island.
[21] Department of National Defence, "Operation Laser," last modified 5 April 2022, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/laser.html; Department of National Defence, "Operation Vector," last modified 8 April 2022, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-vector.html. Embedded military planning elements during Operations VECTOR and LASER in 2020 and 2021 demonstrated the CAFs ability to meaningfully contribute planning expertise to whole-of-government responses. Few OGDs possess the same level of planning training and dedicated staff to be able to perform this function, making this a unique strength of DND.

subordinate departments for initiatives and plans that further northern strategic development.[22] With national and human security imperiled by the effects of climate change, DND must demonstrate leadership and put forward a proposal in line with ANPF goals that enables whole-of-government operations in the north.

Argument

For centuries, the critical operational constraint in the north has been logistical sustainment and resupply. Indeed, since the Franklin Expedition, the availability and movement of resources has governed the intensity and persistence of northern operations. This study will argue that Canada must advance the ANPF through the DND-led construction of the multi-purpose Northern Operational Support Hub (NOSH) system to enable inter-agency operations and pre-empt imminent foreign and environmental threats to Canada's northern security. Furthermore, using the eight ANPF objectives as a framework it will demonstrate how DND, OGDs and communities can work collaboratively to develop a robust solution to Canada's northern challenges.

Chapter 1 of this paper studies the first-order impacts of environmental climate within Canada's north. It establishes the changing conditions that will challenge operations in the region over the next 20 years. Chapter 2 draws out the international threats and opportunities to Canada's elements of national power that this environmental change will create, as well as the importance of the north to Canada's foreign policy strategy. Building from this, Chapter 3 demonstrates why ANPF in its current form is insufficient, what the NOSH consists of and why it offers an efficient whole-of-

[22] Note, for the remainder of this paper, reference to "government" or "whole-of-government" infers the inclusion and acquiescence of Indigenous and community leaders. It should not be misconstrued as inferring only the central Federal government or departments.

government solution to a shared operational problem. Chapter 4 then details necessary budget, timelines and decision-making bodies required to realize the NOSH system. Finally, Chapter 5 reconciles the need for prudence in a rapidly changing region with the requirement for deliberate progression, and presents an initial NOSH public engagement strategy. Throughout, this paper will highlight the fundamental importance of Indigenous input, perspective and approval.

Literature Review

The challenges and socio-economic potential of the Arctic region have received significant study by academics, scientists and military scholars for decades. However, while many studies have delved deeply into single aspects and proffered solutions to challenges, few comprehensively consider strategic Arctic development in the context of climate change. Rather, most northern studies seek to address individual issues without considering their intersectionality with others, resulting in limited solutions to complex problems. In effect, the north's social, human security, environmental, defence and economic challenges are too often treated separately vice comprehensively. In defending its argument, this paper emphasizes the necessity for cross-disciplinary assessment.

To that end, the works of P. Whitney Lackenbauer and Adam Lajeunesse proved to be an invaluable resource when considering the role of the Arctic in Canada's geopolitical relations.[23] When considering the military implications of the Arctic,

[23] P. Whitney Lackenbauer, *Why Fear Russia in the Arctic?* (North American and Arctic Defence and Security Network, 4 May 2020); Peter Kikkert and P. Whitney Lackenbauer, "Briefing Note: Canada's Arctic and Northern Policy Framework: A roadmap for the future?" *Arctic Yearbook 2019*, Briefing Notes and Commentaries, n.d.; *Canadian Arctic Operations, 1941-2015: Lessons Learned, Lost, and Relearned*, edited by Adam Lajeunesse and P. Whitney Lackenbauer (Fredericton, NB: University of New Brunswick, 2017); Adam, Lajeunesse, *Lock, Stock, and Icebergs? Defining Canadian Sovereignty from Mackenzie King to Stephen Harper*, (Calgary: Centre for Military and Strategic Studies, 2008); Adam Lajeunesse and

Shielding North America: Canada's Role in NORAD Modernization, edited by Nancy Teeple and Ryan Dean, provided a varied body of academic works regarding the defence of North America and substantiated many of the author's initial assumptions.[24] Sifting through innumerable government policies, mandate letters and departmental plans provided insight into GC aims while bypassing misleading rhetoric and highlighting internal inefficiencies.[25] Finally, the numerous environmental studies commissioned by the nations of the Arctic Council present a dire but necessary understanding of the changes underway in the Arctic and their effects on humanity.[26] These references form the academic foundation of this paper and, when viewed holistically, substantiate the need for a comprehensive GC Arctic development program.

The 2019 release of the GC's ANPF presented the author with a unique opportunity to cross-examine Canada's northern ambitions against this myriad of interconnected threats.[27] Through cross-disciplinary synthesis and analysis, it becomes clear that northern challenges cannot be studied and addressed in isolation but must be viewed comprehensively. Further, it reinforces that scientific and academic study must inform and drive *action* if threats are to be proactively mitigated. To that end, this paper

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Rob Huebert, "Preparing for the Next Arctic Sovereignty Crisis: The Northwest Passage in the Age of Donald Trump," *International Journal* 74, no. 2 (2019).

[24] *Shielding North America: Canada's Role in NORAD Modernization*, edited by Nancy Teeple and Ryan Dean (Peterborough, Ontario: North American and Arctic Defence and Security Network, 2021).

[25] Standing Senate Committee on Transport and Communications, *One Size Doesn't Fit All: The Future Growth and Competitiveness of Canadian Air Travel*, (Ottawa: Government of Canada, April 2013); Infrastructure Canada, *Investing in Canada: Canada's Long-term Infrastructure Plan*, (Ottawa: Government of Canada, April 2018); Environment and Climate Change Canada, *Climate data and scenarios for Canada: Synthesis of recent observation and modelling results*, (Ottawa: Government of Canada, 2016).

[26] Natural Resources Canada, *Canada's Changing Climate Report 2019*, (Gatineau, Quebec: Government of Canada, 2019); Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: Key Trends and Impacts*, (Tromsø, Norway: Arctic Council, 2021).

[27] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic and Northern Policy Framework* (Ottawa: Government of Canada), last modified 18 November 2019, https://rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587#s0.

links northern challenges and bridges the literary gap between analytical study and practical application, and makes an original contribution to the literature by proposing a practical and academically substantiated means for achieving the ANPF.

Conclusion

While threats to Canada's north were historically military, climate change is diversifying and intensifying the regional concerns.[28] Humanitarian assistance, environmental disaster response, illegal fishing, protection of energy supplies, and search and rescue (SAR) are of growing national importance.[29] In this complex and inter-connected security environment, no single entity possesses the mandate or the resources to act independently. Further, unilateral action without Indigenous community approval would be ill-advised and almost assuredly ill-fated. However, with further refinement, the ANPF can become the requisite mechanism to navigate impending complex strategic threats. As this paper will demonstrate, accomplishing the eight ANPF objectives does not rest in more capable or more numerous platforms, but rather in the reliable provision of logistical support through a network of interconnected routes and facilities.

[28] Department of National Defence, *Strong Secure Engaged: . . .*, 17, 60 – 61.
[29] Briggs, 46.; Department of Fisheries and Oceans, *2021-22 Departmental Plan* (Ottawa: Government of Canada, 2021), 5.

CHAPTER 1: CLIMATE CHANGE IN THE ARCTIC

Introduction

Climate change is irreversibly shifting Canada's northern environment toward more temperate conditions, threatening the cultural practices and safety of the Inuit people. In response, the ANPF's regional-level objectives focus on sustaining human health, improving ecological security and increasing government responsiveness through Indigenous awareness (Figure 1.1). Together, these goals form the foundation for the GC's vision for the north. They seek to empower self-determination in local communities through science, academia, and federal investment to protect traditional Inuit practices. They rightly recognize that change in the north must be achieved in an Indigenous-led way and with respect to local cultures and traditions.[30] However, the impending collapse of traditional food-webs in a region where 57% of communities already suffer from food insecurity, and the conspicuous lack of existing social services in northern communities, demonstrate that Canada's regional goals will not be easily achieved.[31]

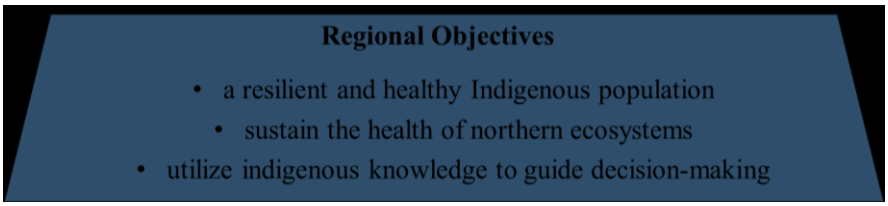

Figure 1.1: ANPF's Regional Objectives

Source: Author's design from ANPF.

Over four sections, this chapter explores the four most critical environmental effects of climate change and their predicted impacts on northern peoples. The first

[30] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . ..*
[31] Library of Parliament, *Food Security in Northern Canada: An Overview* (Ottawa: Government of Canada, 1 April 2020), i.

section highlights how decreasing multi-year sea ice coverage is affecting traditional Inuit customs and exponentially increasing the rate of regional warming. The second explores how the loss of northern permafrost is destabilizing the region and inhibiting the development of new infrastructure. The third section details the predicted effects of climate change on the regions flora and fauna, while the fourth highlights how global toxins and contaminates are rapidly concentrating in the Arctic food-chain. Throughout, the author seeks to highlight the intersection and inter-relation of these threats and their effect on the Inuit people. A failure by the GC to account for these threats would readily cause ANPF to become inconsequential as implemented solutions would fall victim to the very dangers they are trying to address. The peoples of the Inuit Nunangat cannot and should not have to face these impending dangers alone.

Reduction of Multi-year Sea Ice

There are two different kinds of ice in the Arctic Ocean: multi-year sea ice and seasonal ice. Multi-year sea ice is the thick, solid mass of persistent ice emanating from the pole that is impassible to shipping. Each year, for hundreds of kilometres around the peripheries of this frozen core, impermanent seasonal ice expands and contracts with the seasons. Due to global warming, the extent of multi-year sea ice has decreased 43% over the last 40 years (Figure 1.2).[32] As this core diminishes, so does the extent and thickness of the seasonal ice sheets throughout the Canadian Archipelago.[33] As open water absorbs 84% more solar energy than ice, regional warming is increasing exponentially, melting more multi-year sea ice and decreasing the winter over-ice mobility of wildlife and Inuit

[32] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 6.
[33] Michael Byers, "Cold Peace: Arctic Cooperation and Canadian Foreign Policy," *International Journal* 65, no. 4 (Autumn 2010): 900; Natural Resources Canada, *Canada's Changing Climate Report 2019* (Gatineau, Quebec: Government of Canada, 2019), 37, 216.

communities throughout the region.[34] This decreasing coverage and thickness in seasonal ice has led to increasingly long periods of freedom of navigation through parts of Canada's northern waterways. At the current cumulative rate of degradation, the Northwest Passage (NWP) is predicted with medium certainty to be seasonally ice-free late into September by 2040, and multi-year sea ice to have entirely retreated from the Canadian Archipelago by 2075.[35]

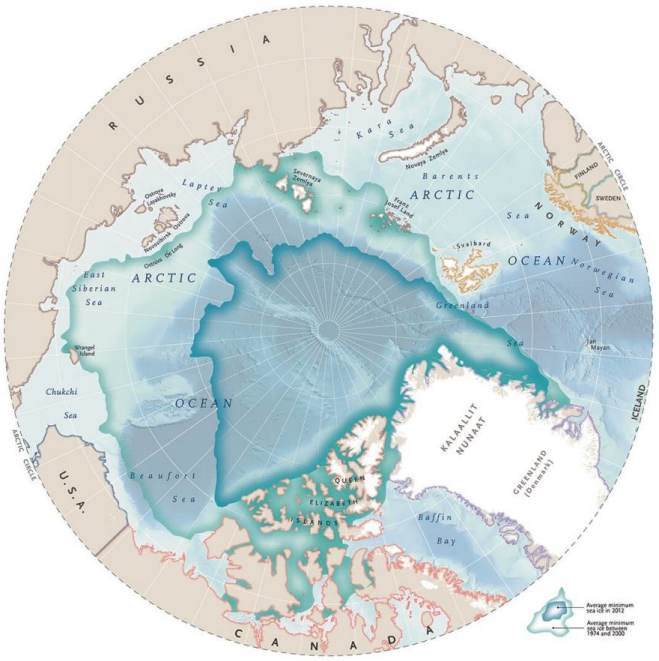

Figure 1.2 – Decreasing Minimum Persistent Sea Ice Coverage

Source: Joey Angnatok and Rodd Laing, "Sea Ice," *Indigenous Peoples Atlas of* Canada (Royal Canadian Geographic Society) last accessed 12 December 2021, https://indigenouspeoplesatlasofcanada.ca/article/sea-ice/.

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[34] Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 44, 198, 211; Protection of the Arctic Marine Environment Committee, 5. The loss of sea ice in eastern Canada has increased from 5% per decade in 1968 to 8% per decade currently.

[35] Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 198; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .*,7; Team Green Analytics, *The Economic Impacts of the Weather Effects of Climate Change on Communities* (Guelph Ontario: Ontario Centre for Climate Impacts and Adaptation Resources, 8 May 2015), 33; House of Commons Standing Committee on Foreign Affairs and International Development, 16.

This reduction of multi-year and seasonal ice creates two distinct changes in northern Canada. Most obvious to those not living within the Inuit Nunangat is the opening of a 7,000 kilometre short-cut around North America for commercial shipping.[36] Canada's marine transport sector already represents 20.6% of Canada's international trade, and is set to dramatically increase as the Arctic Ocean becomes more accessible.[37] Indeed, this trend is already visible, as the number of vessels operating in the Arctic is increasing at 5% per year.[38] While this increasing commercial traffic offers Canada direct and indirect economic advantages, the human and environmental risks presented by these poorly charted and inadequately monitored northern waterways must be considered.[39]

The second distinct challenge created through ice loss is the increasing reduction in winter mobility. Numerous species and the Inuit themselves rely on over-ice mobility for subsistence and cultural activities. Unfortunately, research from Greenland indicates that the historic safe over-ice mobility season has already decreased by almost half.[40] For Inuit, ice forms a critical part of the socio-economic infrastructure.[41] Its rapid loss unhinges an essential subsistence relationship between land and sea in a manner not easily adapted to when considered in context with the three other critical effects of climate change detailed below.

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[36] Byers, 901 – 902.
[37] Department of Fisheries and Oceans, *2021 Blue Economy Strategy Engagement Paper* (Ottawa: Government of Canada, February 2021), 35.
[38] Protection of the Arctic Marine Environment Committee, *Marine Protected Areas in a Changing Arctic – 2021 Information* Brief (Reykjavik, Iceland: Arctic Council, May 2021), 10. From 2013 to 2019 the number of unique vessels operating in the Arctic increased from 784 to 944.
[39] House of Commons Standing Committee on Foreign Affairs and International Development, 72.
[40] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 8.
[41] Angnatok and Laing.

The Active Permafrost Layer

Millennia ago, as northern glaciers retreated towards the Pole, they left the earth beneath them compressed under their immense weight. Permafrost, the persistently frozen groundwater trapped beneath the surface of northern soils, has since kept that land frozen in place. While the uppermost edge of this permafrost is seasonally *active*, meaning that it melts and refreezes annually, at depth it provides the immovable foundation upon which 66% of Arctic communities are built.[42] Permafrost also extends out under the Arctic Ocean, inhibiting coastal erosion and providing geological and ecological stability.[43]

Worryingly, recent measurements indicate that global warming is causing permafrost to melt at a rate of 10%, and become more active each summer.[44] While scientists stress that it may take decades for permafrost to disappear entirely, even relatively shallow changes in this foundational element of the ecosystem are creating catastrophic consequences.[45] As newly thawed soils shift, much of Canada's is rising at a rate of 5mm or more annually, while other areas are subsiding towards or below sea level (Figure 1.3).[46] Locally, this uplift will cause communities, coastlines and waterways to change relative position, significantly changing natural patterns and challenging seasonal community resupply.[47] Additionally, non-uniform permafrost melt and soil movement are

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[42] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 9.
[43] Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 233.
[44] Russian Association of Indigenous Peoples of the North, "Thawing Permafrost," last accessed 15 December 2021, https://arctic-council.org/explore/topics/arctic-peoples/our-changing-home/permafrost/; Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 199. Specifically in the ecologically important MacKenzie River Valley that flows from Yellowknife to the Arctic Ocean.
[45] Natural Resources Canada, *Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptations*, (Ottawa: Government of Canada, 2014), 37.
[46] Natural Resources Canada, *Canada in a Changing Climate: . . .,* 53; Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 382.
[47] Natural Resources Canada, *Canada in a Changing Climate: . . .,* 55.

already causing catastrophic localized variations in the form of frost-heave craters or swollen hills, known as pingos.[48]

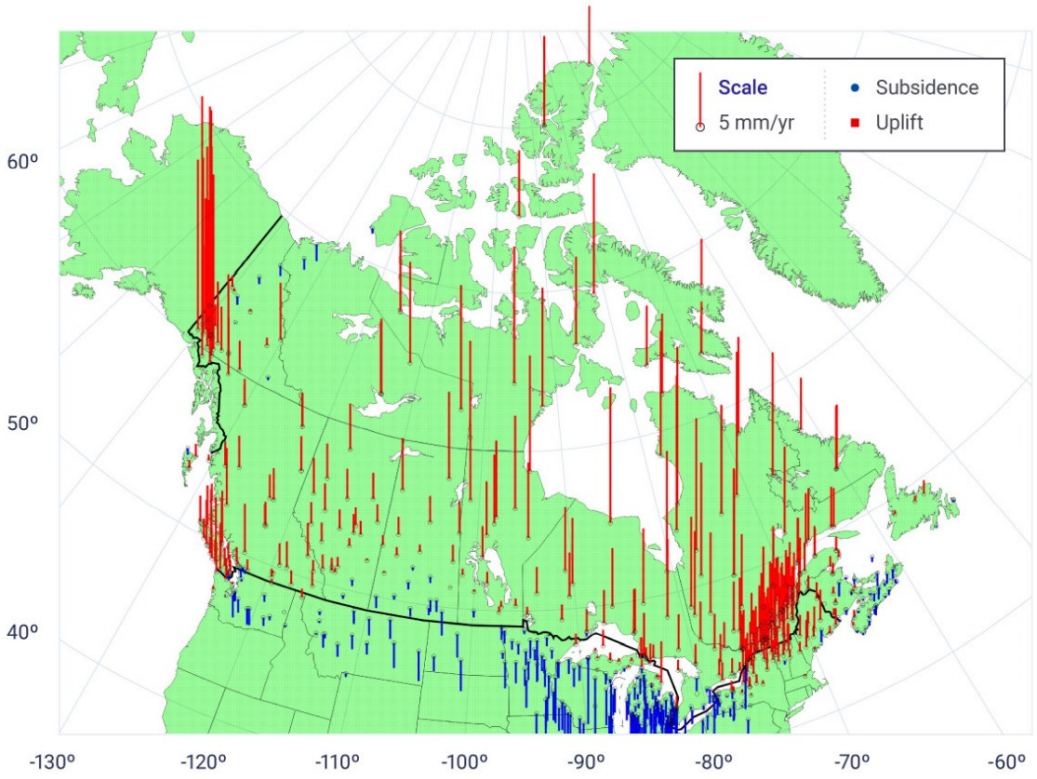

Figure 1.3: Geological Uplift and Subsidence in Canada

Source: Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 382.

These geological changes are exacerbating the already precarious state of northern infrastructure, causing an 18% increase in infrastructure maintenance cost across the Territories in 2016.[49] As this active layer deepens, it will assuredly become a severe problem for fragile northern airfields constructed on steel piles driven into the permafrost.[50] These are daunting conditions in which to plan community sustainment or

[48] Russian Association of Indigenous Peoples of the North, "Thawing Permafrost" . . ..
[49] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . ..
[50] *Ibid*; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 11; Standing Senate Committee on Transport and Communications, *One Size Doesn't Fit All: The Future Growth and Competitiveness of Canadian Air Travel* (Ottawa: Government of Canada, April 2013), 6.

plan infrastructure development. Only through scientific survey and over-engineering will future infrastructure withstand these effects.

Closely linked to this geological change, is the hydrological effect permafrost loss will have on the region's freshwater table. Freshwater lakes form almost 25% of Canada's northern lowlands and sit on top of the region's permafrost.[51] As permafrost declines unevenly across the region, these bodies of water, varying from 10 to 10,000m wide and up to 20m deep, are prone to migration, potentially even disappearing entirely beneath the surface.[52] This creation of a subterranean water table where one has not existed for millennia will further change the region's fragile geography and biota. Further, this growing regional water table will mobilize any historic contaminates from mining, military or community activity that were hitherto safely trapped on the surface. This hydrological and toxic migration has the potential to cause an ecological tragedy throughout the region.[53] Therefore, the GC urgently needs to increase northern operations to monitor and contain legacy contaminates, and provide communities with municipal infrastructure that can preserve drinking water safety.

The final notable consequence of permafrost loss impacts the Arctic's littoral and coastal areas, where sea ice and permafrost previously worked together to inhibit wave erosion. However, the concurrent degradation of both has caused coastal erosion rates due to wave action and storms in the Arctic to soar.[54] As witnessed in Tuktoyuktuk, the

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[51] Natural Resources Canada, *Canada's Changing Climate Report 2019 . . .*, 226.
[52] *Ibid*, 304.
[53] Andrew S. Medeiros *et al*, "Water Security for Northern Peoples: Review of Threats to Arctic Freshwater Systems in Nunavut, Canada," *Regional Environmental Change* 17, no. 3 (2017): 639.
[54] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 9; Inuit Circumpolar Council, "Disappearing Sea Ice, Changing Diet," last accessed 15 December 2021, https://arctic-council.org/explore/topics/arctic-peoples/our-changing-home/sea-ice/; Natural Resources Canada, *Canada's Changing Climate Report 2019 . . .*, 349, 378. Average Arctic summer wave height has increased by 3-8% in the last decade.

conjunction of wave erosion with geological settlement is degrading the marine approaches, landing areas, and airfields vital to the sustainment of coastal communities.[55] In summation, the loss of permafrost is destabilizing the geology, hydrology and littoral areas of the Inuit Nunagat to potentially disastrous consequence.

Biota and Weather Change

Regional food chains are a delicate and inseparable balance of flora, fauna and environmental conditions.[56] At present, rapidly warming conditions are generating extreme conditions faster than the natural system can adapt, risking invasive species migration, disease and biodiversity collapse.[57]

At sea, the increasing absorption of solar radiation is growing the frequency, duration and intensity of marine heatwaves.[58] This heat is forcing native cold-water species to greater depths, reducing community harvests and straining the subsistence farming culture of small communities.[59] Concurrently, seals are becoming thinner, and worms and other parasites in aquatic fish and mammals are becoming more common.[60] Significant reduction in sea ice and migration patterns also challenge apex regional predator populations, like the polar bear, to remain healthy and reproduce. The Arctic Ocean has also demonstrated itself to be prone to acidification, the absorption of CO2 from the global atmosphere, which is changing the chemical composition of the water to

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[55] Standing Senate Committee on Transport and Communications, 6.
[56] Environment and Climate Change Canada, *2021-22 Departmental Plan . . .,* 9.
[57] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 8; Organisation for Economic Co-operation and Development, *Environment at a Glance 2020* (Paris: OECD Publishing, 2020), 3; Russian Association of Indigenous Peoples of the North, "Thawing Permafrost" . . ..
[58] Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 6, 273; Protection of the Arctic Marine Environment Committee, 5.
[59] Russian Association of Indigenous Peoples of the North; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 2.
[60] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 8.

unknown effect.[61] While many northern species are in decline, others like the bowhead whale and arctic murre are thriving.[62] Algae populations, the foundation of marine food chains, have grown 27% in the last 20 years in response to rising water temperatures.[63] However, unfamiliar southern marine species, better equipped for warmer, more acidic waters, are migrating north and replacing Arctic species.[64]

On land, terrestrial groundwater tables and aquifers are in a state of flux. A reduction in glacier coverage is decreasing seasonal freshwater runoff from ice melt and causing decreasing surface water levels in many areas.[65] This, in combination with declining permafrost conditions and increasing evaporation, has caused terrestrial surface water dissipation to become increasingly frequent, with 79 lakes known to have disappeared entirely in Yukon and the Northwest Territories (NWT) since 1950.[66] The loss of these shallow lakes and streams directly impacts wildlife patterns, forcing community hunters to secure traditional food sources further afield.[67] This reduction in freshwater runoff towards the Arctic Ocean is also causing increasing localized water salinity, further changing the composition of this aquatic biosphere.[68] Additionally, increasing sediment and turbidity in groundwater enhances the likelihood of pathogens in

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[61] Protection of the Arctic Marine Environment Committee, 5; Organisation for Economic Co-operation and Development, 20. Acidity in the Arctic Ocean has increased 27% in the past 30 years.
[62] Inuit Circumpolar Council; Circumpolar Seabird Expert Group, *State of the Arctic Marine Biodiversity Report Update: Seabirds* (Borgir, Iceland: Conservation of Arctic Flora and Fauna, 2021), 2.
[63] Protection of the Arctic Marine Environment Committee, 6.
[64] *Ibid*. Atlantic Zooplankton have been found to be replacing their Arctic cousins to unknown effects on animals who may not be well-adapted to digest them.
[65] Medeiros *et al*, 639; Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 199, 202.
[66] Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 304.
[67] Russian Association of Indigenous Peoples of the North; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 2.
[68] Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 373-376, 405. Hypoxia, a decrease in oxygen levels in the water, has not been detected and there is some evidence to indicate that oxygen levels are, in fact, increasing.

drinking water, creating conditions for increased disease in both animals and humans.[69] These warmer temperatures also bring invasive species like the mountain pine beetle, whose populations are expanding rapidly by consuming the limited northern plant-life that traditional indigenous species require.[70] Far from greening with warming temperatures, Canada's north is browning and becoming less hospitable as it progresses through this period of significant change.[71] Further, the extreme weather events and natural disasters that have become prevalent in the south are also increasing in frequency and intensity in the north.[72] Temperature, precipitation and even boreal forest fire events that once occurred every decade are predicted to become annual events, straining the ecosystem, civilian infrastructure and government response mechanisms.[73]

Weather patterns throughout the north are also adapting to these new conditions. The northern Spring and Fall, known as the "shoulder seasons," are now becoming far shorter, increasingly unpredictable and more dynamic, bringing larger amounts of precipitation which roads and civil infrastructure are not designed to accommodate and constraining traditional migration patterns.[74] The effect of these unpredictable weather patterns and increased precipitation is forcing northern communities to rely heavily on air transport for sustainment and essential travel. However, poor northern infrastructure, small customer bases and limited northern carriers have created the conditions where

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[69] Medeiros *et al*, 639; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 8.
[70] Natural Resources Canada, *Canada in a Changing Climate: . . .,* 72.
[71] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 13.
[72] Environment and Climate Change Canada, *Climate data and scenarios for Canada: . . .*, 23; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 7-11.
[73] Environment and Climate Change Canada, *Climate data and scenarios for Canada: . . .*, 23; Team Green Analytics, 14; Jill Barclay *et al*, *Policy Primer: The Impacts of Climate Change on North American Defence and Security* (North American and Arctic Defence and Security Network, 25 September 2020), 2.
[74] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 5, 8.

northern air travel is exorbitantly expensive, and drives cost of living expenses exponentially higher for Inuit communities.[75]

Toxins

Life expectancy in the Inuit Nunangat is ten years less than the Canadian average, and one of the primary causes of this may be exposure to environmental contaminants.[76] Due to the nature of global wind and weather patterns, the world's free mercury continues to be deposited into the Arctic, where it makes its way into the food chain.[77] Through bio-magnification, this mercury coalesces in apex animals like polar bears, killer whales and humans, creating carcinogenic effects and adversely affecting immune and reproductive functions.[78] The Inuit's nutritional requirement to consume high-energy blubber and organ meat and the traditional community dishes prepared from these animals are increasing their exposure to this harmful element. Therefore, while the GC is investing $62.6 million in improving traditional hunting and harvesting activities through the Nutrition North program, consideration is required of the ecological and human health repercussions of these activities.[79]

In addition to mercury, Inuit exposure to carcinogenic black carbon is also of growing concern as global greenhouse gas emissions continue to concentrate in the

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[75] Transport Canada, *Investing in Canada* (Ottawa: Government of Canada, 2018), 20.
[76] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . ..
[77] Arctic Monitoring and Assessment Program, *Mercury Assessment: A summary for Policy-makers* (Tromsø, Norway: Arctic Council, 2021), 2; Natural Resources Canada, *Canada's Changing Climate Report 2019* . . ., 233.
[78] Arctic Monitoring and Assessment Program, *Mercury Assessment:* . . ., 2, 5; Arctic Monitoring and Assessment Program, *Biological Effects of Contaminants* . . ., 3; Russian Association of Indigenous Peoples of the North, "Thawing Permafrost" . . .. Mercury levels in pregnant women across seven Arctic countries are some of the highest in the world.
[79] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . ..

Arctic.[80] Sadly, the reliance of northern communities on fossil fuels for power generation exacerbates this issue and is liable to increase as traditional food storage techniques are increasingly less viable under warming conditions.[81] Worse, too often, this community reliance on fossil fuels leads to leaks and spills, which take longer to decompose in cold waters and will more readily find their way into the regions forming aquifers.[82] The cost of remediating community and commercial contamination sites is immense, primarily due to the distances equipment and sustainment must travel on inefficient round-trips, but this is a necessary and time-sensitive activity.[83]

Synthesis

Canada's north is presently undergoing a fundamental shift in its structure and function as the inter-related effects of climate change reshape the ecosystem. The traditional food sources and migration patterns that have shaped Inuit culture are becoming less viable. Shifting land and sea conditions are damaging existing infrastructure and significantly complicating the planning of new infrastructure. Food and water security are becoming increasing concerns as resources become scarce and toxins enter the ecosystem. Viewed holistically, these four regional changes form a very challenging picture of Canada's north moving forward (Figure 1.4). These effects fundamentally undermine human security in the Arctic, an issue that has been historically

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[80] Organisation for Economic Co-operation and Development, 17, 23; Arctic Monitoring and Assessment Program, *Biological Effects of Contaminants . . .*, 2.
[81] Inuit Circumpolar Council.
[82] Mary Simon, "A new Shared Arctic Leadership Model," last modified 27 April 2017, https://rcaanc-cirnac.gc.ca/eng/1492708558500/1537886544718; Organization for Economic Cooperation and Development, 17. The carbon footprint of OECD countries that accounts for all carbon emitted anywhere in the world to satisfy domestic final demand is about 18% higher than domestic emissions; Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 9.
[83] Medeiros *et al*, 641-642. The remediation of 17 known abandoned mines alone is estimated at $555 million and does not include legacy military sites that house buried caches of petrochemicals.

subordinated to the narratives of military and state security.[84] If Canada is to achieve the regional goals laid out in the ANPF and fulfill the promises made to the Inuit peoples, it must be fully cognizant of the challenging road ahead.

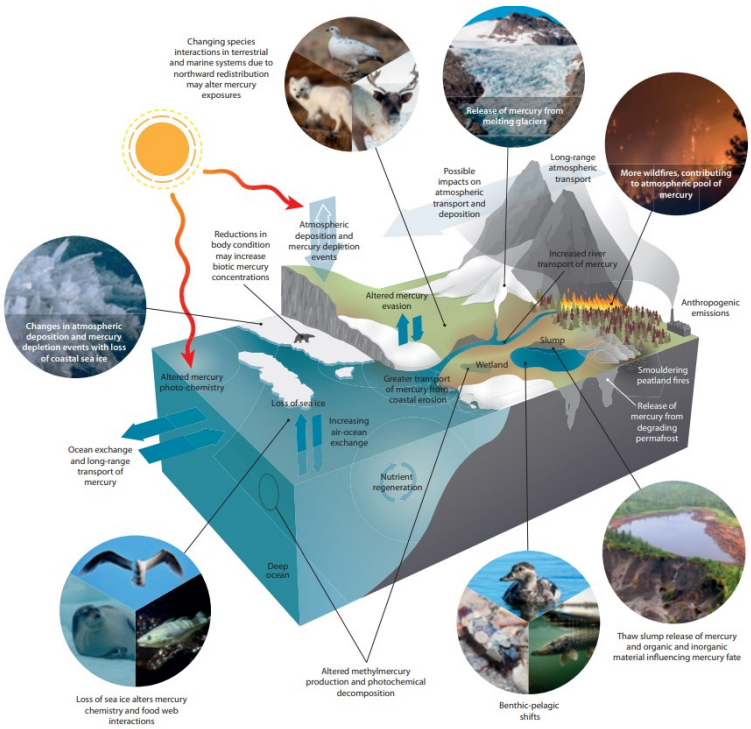

Figure 1.4: Integrated Climate Change Effects

Source: Arctic Monitoring and Assessment Program, *Mercury Assessment: . . .*, 9.

Canada has a duty not just to protect the physical security of the Inuit peoples, but also to provide cultural security in the face of overwhelming change. To date, the GC's responses have focused on individual threats, vice addressing the consolidated adverse effects of climate change. Singling out individual issues for resolution is not an effective

[84] Gunhild Hoogensen, Dawn Bazely, Julia Christensen, Andrew Tanentzap, and Evgeny Bojko, "Human Security in the Arctic--Yes, it is Relevant!" *Journal of Human Security* 5, no. 2 (2009), 4. Also see the cyclical intersection between Arctic economic growth and human security presented in Figure 1, page 5.

or efficient remedy to these wide-ranging environmental threats.[85] Instead, the GC must first set the conditions to develop environmental intelligence throughout the region and create an efficient and flexible system that triages and mitigates the worst effects in critical locations.

To that end, Environment and Climate Change Canada's (ECCC) 2021 Departmental Plan outlines their intent to establish a scientific system to monitor priority contaminants, geological changes, and species conditions throughout the north.[86] However, like all other GC regional activities, their efforts are constrained by the availability of northern transportation and sustainment infrastructure.[87] Additionally, northern communities will soon require significant material resources and secure mobility corridors through which routine and emergency support can be reliably provided year-round. Thus, an integrated whole-of-government sustainment network, like the NOSH, must be developed to meet these dual requirements and provide the north with the required tools to achieve the three ANPF regional goals by ensuring human and cultural security in the face of change and uncertainty.

Conclusion

This chapter has demonstrated that the environmental effects of climate change present a very tangible and imminent risk to human security within the Arctic region. Sea ice loss, permafrost degradation, weather pattern change and accumulating toxins

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[85] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*. For example, significant funding was released to remediate nine abandoned mine debris and toxic material sites. However, this material must be transported south for remediation and disposal through an inefficient and ill-positioned logistical system.

[86] Environment and Climate Change Canada, *2021-22 Departmental Plan, . . .,* 22.

[87] Observe the limited number of northern geological data collection points in Figure 1.2, this lack of baseline data is mirrored across the three other critical changes listed in this chapter, creating a significant deficit in environmental intelligence.

threaten the Inuit way of life and create the impetus for rapid solutions to mounting challenges. To this end, the ANPF's three regional objectives strive to secure the human and ecological stability of the north as the foundation from which all other national objectives must be built. However, simply alluding to or creating policy demanding regional stability is a far cry from tangibly setting the conditions to achieve it. The GC and its subordinate departments must strive to create these conditions through planning, growth and investment in durable northern infrastructure that can weather increasingly unstable conditions, providing the necessary lifeline of sustainment communities require. The next chapter expands from this domestic perspective, and explores the international conditions and external challenges that will define Canada's realization of its Arctic ambitions.

CHAPTER 2: ARCTIC DEVELOPMENT IN AN INTERNATIONAL CONTEXT

Introduction

On the global stage, the realization of Canada's Arctic prosperity is far from assured. Both militant northern neighbours and economically ambitious southern states are using their elements of national power to impede it.[88] This chapter expands past the regional environmental challenges to explore the international context in which Canada will exercise its national Arctic vision. The contemporary conflation of domestic and foreign policy demands that ANPF's national and international-level objectives be explored concurrently, as their collective success or failure is inter-linked.

Nationally, Canada has identified the goals of *improved infrastructure connections*, *sustainable and diversified economies*, and *Indigenous reconciliation through self-determination and respect* as crucial to national success (Figure 3).[89] These domestic goals seek to improve the economic and social linkages between north and south. They strive to wring maximum national benefit from the development of northern resources through alignment with federal policies while concurrently integrating the perspectives and prosperity of Indigenous peoples. These regional and national objectives are then geopolitically secured by the ANPF's two international objectives of *a secure and well-defended north*, and *the effective response of the rules-based global order to challenge and opportunity*.[90]

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[88] Department of National Defence, *Pan-Domain Force Employment Concept: Prevailing in an Uncertain World* (Ottawa: Canadian Joint Operations Command, unpublished draft), 34-36.
[89] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . .. ANPF goals two, three and eight. Emphasis added.
[90] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . .. ANPF goals six and seven. Emphasis added.

Analysis Methodology

At the geopolitical level, governments employ their elements of national power to entice and coerce other nations towards their desired objectives. Historically assessed through the framework of Diplomatic, Information, Military and Economic (DIME), these elements unify diverse federal efforts towards single outcomes. However, over the past decade the information domain has become a battleground as nations seek to enforce competing narrative over global affairs. This has necessitated a shift in the traditional assessment model to DME=I, where actions in the first three spheres invariably create a positive or negative effect in the information domain.[91]

Using the DME=I framework, this chapter will first explore the diplomatic, military and economic challenges to Canada's domestic and international ANPF objectives. Then, the potential weaknesses that could be leveraged by adversaries to negatively impact Canada's information environment will be considered. The chapter concludes by drawing four key conclusions that the GC must address through the operationalization of the ANPF if Canada is to achieve its future ambitions. In the pursuit of northern development, Canada will be challenged not just by emergent adversaries, but also by long-time allies.

Arctic Diplomacy

ANPF correctly identifies that the international community's continued adherence to the rules-based global order is a vital precondition for preserving Canada's territorial integrity in its remote and poorly monitored northern reaches. Interestingly, this is not a

[91] Ministry of Defence, Joint Doctrine Note 2/19*, Defence Strategic Communication: an Approach to Formulating and Executing Strategy* (Swindon, UK: UK MoD, 2019), 3, 12.

uniquely Canadian vulnerability. All Arctic nations face a similar challenge. The region's maritime approaches and material resources are becoming accessible to the international community faster than individual Arctic nations can develop the policies and infrastructure to secure them.[92] In such a competitive environment, Arctic nations are coming closer together to coordinate regional responses to international challengers in an effort to safeguard their own, and mutual, prosperity.[93]

Formed in 1996, the Arctic Council has been a long-standing and effective mechanism for member-states to collaborate on economic and environmental issues.[94] The Council, and its subordinate multinational scientific and economic committees, provides an efficient means for member nations to access a wide variety of resources, burden-share costs and compare best practices.[95] As no Arctic nations would benefit from instability and international competition, diplomatic dialogue framed around adherence to international norms is of paramount interest to all members.[96] This need for regional geopolitical stability has regularly insulated the conduct of Arctic affairs from wider competition and animosity, allowing diametrically opposed states to collaborate towards regional benefits.[97] For Canada as a middle-power, this continued regional cooperation

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[92] Department of Defense, *Report to Congress: Department of Defense Arctic Strategy* (Washington D.C.: Office of the Under Secretary for Defense Policy, June 2019), 2; The State Council Information Office of the People's Republic of China, *China's Arctic Policy* (Beijing: Government of China, January 2018).
[93] Grigory Ledkov states "It is important to address climate change in interrelated manner: the need to create conditions for human / nature adaptation and the adaptation of economies." Russian Association of Indigenous Peoples of the North.
[94] Michael Byers, "Cold Peace: Arctic Cooperation . . ., 899; Department of National Defence, *Strong Secure Engaged: . . .*, 50.
[95] P. Whitney Lackenbauer, *Why Fear Russia in the Arctic?* (North American and Arctic Defence and Security Network, 4 May 2020), 3.
[96] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . ..*
[97] Arctic Monitoring and Assessment Program, *Arctic Climate Change Update 2021: . . .,* 14-15; Michael Byers, "Cold, Dark, and Dangerous: International Cooperation in the Arctic and Space," *Polar Record* 55 (2019), 42. Russia and the US collaboratively oppose a wider Chinese influence in the area. Canada and Russia concur on considering their respective passages as internal waters, in opposition to the US.

and the insulation of Arctic affairs from global volatility directly contributes towards ANPF success, making the Arctic Council instrumental to Canada's ambitions.[98] However, many question whether if the Council will be able to continue to function harmoniously as China asserts itself more fully in Arctic affairs.[99] Further, the region's many unresolved bilateral boundary disputes are becoming more acute as international access grows (Figure 2.1). The Arctic Council cannot solve these disputes and has instead directed nations to seek resolution through ponderous international judiciary bodies with uncertain outcomes.[100]

Figure 2.1: Status of Arctic Maritime Boundaries, excluding NWP Dispute

[98] Michael Byers, "Cold Peace: Arctic Cooperation . . ., 912.
[99] Michael Byers, "Cold, Dark, and Dangerous: . . ., 42.
[100] Ekaterina Piskunova, "Russia in the Arctic: What's Lurking Behind the Flag?" *International Journal* 65, no. 4 (2010), 851; House of Commons Standing Committee on Foreign Affairs and International Development, 44.

Source: House of Commons Standing Committee on Foreign Affairs and International Development, 33.

Canada's most significant territorial dispute concerns the United Nations Conventions on the Law of the Sea and its application over the Northwest Passage (NWP). In essence, Canada claims that all waters within the Canadian Archipelago are internal, permitting Canada to refuse passage to and impose stringent national regulatory standards on marine traffic.[101] However, the US has declared Canada's claim illegitimate, asserting that the NWP is an international straight.[102] The two sides are not easily reconciled. Canada cannot readily achieve economic prosperity and environmental protection without territorial integrity. Alternatively, the US cannot cede a maritime straight to the sole governance of a single nation, even a close ally, without setting a global precedent that would further unsettle global security.[103] In effect, adopting the Canadian position on the NWP undermines western freedom of navigation elsewhere in the world, while adopting the US position degrades Canada's economic prosperity and security by allowing almost unrestricted access for foreign warships and maritime traffic.[104] To date, the NWP has been a carefully stage-managed agree-to-disagree affair.[105] However, this contentious issue leaves Canada in the delicate position where it must strive to assert its own independent ambitions without undermining defence and trade relations with its principal ally. While neither nation is presently looking for legal

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[101] Michael Byers, "Cold Peace: Arctic Cooperation . . ., 907; Maude Ouellet-Savard, *What Does the U.S. Policy on the Northwest Passage Mean for the Royal Canadian Navy?* (Toronto: Canadian Forces College, 15 October 2018), 3.
[102] House of Commons Standing Committee on Foreign Affairs and International Development, 45. An international straight connects two bodies of water, through which traffic must be continuous and unimpeded; Marc Lanteigne, *The Changing Shape of Arctic Security* (North Atlantic Treaty Organization Review, 28 June 2018); Lajeunesse and Huebert, 226; Ouellet-Savard, 5. Piskunova, 856.
[103] Ouellet-Savard, 7.
[104] House of Commons Standing Committee on Foreign Affairs and International Development, 6, 46.
[105] Lajeunesse and Huebert, 226, 229-230.

resolution, the international potential of the NWP cannot be ignored, and ownership must eventually be resolved.[106]

While function of the Arctic Council historically insulated the region from global instability, its continued effectiveness cannot be assured.[107] Further, the legalities of Canada's claim to the NWP remains intentionally unrecognized by a close ally and trading partner on whom Canada is uncomfortably reliant. In order to strengthen its claim to the NWP and secure Canadian territorial integrity from international instability, Canada must develop a more persistent government presence in the region. Interestingly, faced with a similar issue across the pole, Russia is securing its own ambitions through military force.[108]

Military Expansion

Russia generates 20% of its Gross Domestic Product from Arctic fishing, mineral extraction and state-owned oil and gas companies.[109] As Arctic resources and the Northern Sea Route (NSR) become more accessible, this percentage will increase exponentially. However, Russia's Eurasian aggressions, aimed at maintaining political and economic control over ex-Soviet states, have left Russia economically isolated, thereby increasing the importance of Russia's northern possessions to ensure its national

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[106] *Ibid*, 228, 234-235.
[107] The other nations of the Arctic Council have stated to Russia that; "In light of Russia's flagrant violation of these principles, our representatives will not travel to Russia for meetings of the Arctic Council. Additionally, our states are temporarily pausing participation in all meetings of the Council and its subsidiary bodies, …" Department of State, "Joint Statement on Arctic Council Cooperation Following Russia's Invasion of Ukraine," released 3 March 2022, https://www.state.gov/joint-statement-on-arctic-council-cooperation-following-russias-invasion-of-ukraine/.
[108] Piskunova, 851.
[109] Piskunova, 853; Alexander Sergunin and Valery Konyshev, "Forging Russia's Arctic strategy: Actors and Decision-making," *The Polar Journal* 9(6): 12; Aurel Braun and Stephen Blank, *To Compete with Russia in the Arctic, Canada will Need to Balance Soft with Hard Power* (The MacDonald Laurier Institute, 28 February 2017).

stability.[110] As such, President Vladimir Putin employs military forces and installations to secure Russia's economic resources against Western efforts to weaken his nation.[111]

Since 2013, Russia has invested heavily to establish military installations along the NSR.[112] This investment has included the procurement of new icebreakers, revitalization of Arctic combat formations, and the execution of large-scale military exercises.[113] This spending has resulted in a leaner, modernized and strategically focused Russian military that continues to strive for increased relevance and lethality.[114] Russia has also positioned a portion of its nuclear and newly developed hypersonic missile arsenal in the Kola Peninsula to threaten North America and dissuade challenge to its economic stability.[115] This rapid expansion of military force has provided Russia with regional overmatch against western forces, (Figure 2.2), and the ability to control the tone of political dialogue in the northern hemisphere.[116] This resurgent capability has left western alliances scrambling to revitalize and reorient Cold War-era military systems.

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[110] House of Commons Standing Committee on Foreign Affairs and International Development, 35; Lanteigne.
[111] Piskunova, 852; Sergunin and Konyshev, 14; Ron Wallace, *The Arctic is Warming and Turning Red: Implications for Canada and Russia in an Evolving Polar Region* (Canadian Global Affairs Institute, January 2019).
[112] Pavel Baev, *Russian Strategic Guidelines and Threat Assessments for the Arctic* (Garmisch Partenkirchen, Germany: George C. Marshall Centre for European Security Studies, April 2019), 1.
[113] Baev, 1, 5, 6. 61st Kirkenes marine regiment expanded to a brigade and has rotated multiple battalions though the Donbas region. Also, the newly formed 80th Independent Motor Rifle Brigade has been stood-up, with an emphasis on joint littoral operations; House of Commons Standing Committee on Foreign Affairs and International Development, 24. Exercise Vostok is the premier military exercise regularly undertaken by Russia's Arctic Command. In 2018, Russia claims it consisted of 300,000 military personnel, more than 1,000 aerial vehicles, 1,100 tanks and up to 80 ships.
[114] House of Commons Standing Committee on Foreign Affairs and International Development, 26; Kier Giles, "Assessing Russia's Reorganized and Rearmed Military," *Carnegie Endowment for International Peace* (3 May 2017). While Russia did not meet its target of 70% equipment modernization for its land forces by 2020, its investment in specific capabilities demonstrates strategic spending and improvement.
[115] Baev, 1, 4, 5.
[116] *Ibid*, 7.

Figure 2.2: Russia's Arctic Military Build-up

Source: Robbie Gramer, "Here's What Russia's Military Build-Up in the Arctic Looks Like," last modified 25 January 2017, https://foreignpolicy.com/2017/01/25/heres-what-russias-military-build-up-in-the-arctic-looks-like-trump-oil-military-high-north-infographic-map/.

By design, Russia's northern forces simultaneously challenge the North American Aerospace Defence Command (NORAD) and the North Atlantic Treaty Organization (NATO). From a NORAD perspective, Russia's ability to strike North America with strategic naval and aerospace weapons necessitates defensive build-up of US and Canadian capabilities to deter and, if necessary, defeat it. However, any forces committed to NORAD are then unavailable to support NATO's commitments in Europe, which is Russia's most likely objective in a global conflict.[117] Thus, Canadian security planning must balance defence at home, through a modernized NORAD, with the commitment of expeditionary forces to NATO.[118] As a result, both NATO and NORAD have taken an

[117] Terrence J. O'Shaughnessy and Peter M. Fesler, "Hardening the Shield: A Credible Deterrent & Capable Defense for North America," in *Shielding North America: Canada's Role in NORAD Modernization*, edited by Nancy Teeple and Ryan Dean (Peterborough, Ontario: North American and Arctic Defence and Security Network, 2021), 70.
[118] House of Commons Standing Committee on Foreign Affairs and International Development, 28.

increasing interest in the military advantage offered by Canadian territory and are looking for Canada to contribute more to allied defence.[119]

A long-standing net beneficiary of alliance defence initiatives, the GC does not presently engage its public in a mature national security dialogue.[120] In the past, Canadian military and security spending was often viewed as discretionary, and was foregone in favour of domestically oriented social program spending.[121] This is not a criticism; as a middle power, Canada does not possess the economic base to expand all aspects of national power simultaneously, and thus must balance defence spending against social growth.[122] However, a minimum military capability relative to the expected threat must be sustained if Canada is to be seen internationally as a reliable partner, and retain access to expensive niche US capabilities.[123] Russia's invasion of Ukraine has increased this relative threat and thus demands further Canadian investment into shared continental defence through NORAD and the CAF writ large.[124] While the GC has responded with an $8 billion increase in DND funding, it remains to be seen if this

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[119] Kikkert and Lackenbauer, 6; Rene Heise, *NATO is responding to New Challenges Posed by Climate Change* (North Atlantic Treaty Organization Review, 1 April 2021); Wallace; Government of Canada, *2022 Budget* (Ottawa: Government of Canada, 2022), 134-135. Over the next five years; $252 million committed to NORAD modernization and an overall increase in $8 billion to the CAF budget.
[120] P. Whitney Lackenbauer, "'Defence Against Help': Revisiting a Primary Justification for Canadian Participation in Continental Defence with the United States," in *Shielding North America: Canada's Role in NORAD Modernization*, edited by Nancy Teeple and Ryan Dean (Peterborough, Ontario: North American and Arctic Defence and Security Network, 2021), 3, 6; Thomas Juneau, Philippe Lagassé and Srdjan Vucetic, "Introduction" in *Canadian Defence Policy in Theory and Practice*, edited by Thomas Juneau, Philippe Lagassé and Srdjan Vucetic (Ottawa: Palgrave Macmillan, 2020), 2.
[121] S.A. Nickerson, "Canada's Approach to Defence Spending: Is the CAF Canada's Security Blanket or Insurance Policy?" (Joint Command and Staff Program Course Paper, Canadian Forces College, 2015), 31;
[122] Lackenbauer, "'Defence Against Help':. . ., 2.
[123] Andrea Charron and Jim Fergusson, "NORAD: Beyond Modernization," in *Shielding North America: Canada's Role in NORAD Modernization*, edited by Nancy Teeple and Ryan Dean (Peterborough, Ontario: North American and Arctic Defence and Security Network, 2021), 15. The strategy of investing just enough in defence that Canada is not seen as a security liability and thus can "borrow help" from the US in the form of specific capabilities to forward Canadian military objectives.
[124] Lackenbauer, "'Defence Against Help'. . ., 15; Charron and Fergusson, "NORAD: Beyond Modernization," . . ., 35, 58.

increased funding can overcome the bureaucracy that has historically plagued military procurement.[125] Further, it must be stated that while investment in NORAD modernization and cyber defensive preparations will benefit Canada, and significantly improve Canada's standing with the US, Russia's use of cyber and information operations below the Western threshold for conventional warfare limits the utility of simply returning to a defensive Cold War-era mindset.[126]

This GC investment in military hard power and consequential greater alignment with US foreign and domestic policy will likely weaken Canada's unilateral application of geopolitical soft power, a key tenet of middle-power politics.[127] This potential loss of unilateral self-determination troubles a great many Canadians, who interpret this exchange of soft for hard power as a net-loss for the nation, particularly in the north where Canadian and US interests are not wholly aligned.[128] Thus, the GC faces the challenge of simultaneously appeasing alliance partners by contributing meaningfully to group defence, while concurrently justifying increased security spending at home to a public who feel insulated from international instability by geography.[129]

Some would have Canadians believe that the decision before them is binary, that *only* through investment in NORAD will Canada's northern territories be secure.[130]

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[125] Government of Canada, 131-132.
[126] Department of Defense, *Report to Congress: . . .*, 12; Department of National Defence, *Strong Secure Engaged: . . .*, 50; O'Shaughnessy and Fesler, 67; Government of Canada, 136.
[127] Piskunova, 861-864.
[128] Matthew Trudgen, "The key to the Canada–United States relationship: homeland and continental defence in American strategic culture," *Canadian Foreign Policy Journal* 22, no. 2 (2016): 184-185.
[129] Nancy Teeple and Ryan Dean, "Introduction: The Missing Chapter of Strong, Secure, Engaged," in *Shielding North America: Canada's Role in NORAD Modernization*, edited by Nancy Teeple and Ryan Dean (Peterborough, Ontario: North American and Arctic Defence and Security Network, 2021), vii-viii; Kikkert and Lackenbauer, 5.
[130] Teeple and Dean, "Introduction: . . ., xv; House of Commons Standing Committee on Foreign Affairs and International Development, 28, 92.

However, while a level of US alignment and financial commitment to shared continental defence is undoubtedly necessary, Canada need not entirely forsake its own unilateral pursuit of its regional ambitions.[131] While many Canadians dislike purely defence spending, multi-use projects that benefit a wide range of social and government initiatives are seldom opposed.[132] Multi-disciplinary northern projects are not subject to the same level of political and social opposition as their military counterparts, and yet provide Canada, and by extension NORAD, with similar domestic capabilities. In this context, a proposal for multi-use GC infrastructure throughout the north would readily permit Canada to service its own economic and political ambitions while simultaneously enhancing the airfield, littoral ports, logistics infrastructure and sensors available to NORAD.[133] While Canada must honour its commitments to its military alliances and secure its northern approaches from modern strategic weapons, it cannot sacrifice its northern ambitions, political integrity or the needs of the Inuit people to do so.[134] While of little consequence to its allies, Canada must also recognize that myopic militarization of the north would deter economic investment and reduce future national prosperity.[135]

Navigating Canada's Economic Development

The Arctic's rich deposits of hydrocarbons and minerals have the potential to assure Canada's prosperity for generations.[136] With an established network of northern mines, Canada is well-positioned to be a significant supplier of the world's increasingly

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[131] Trudgen, 195.
[132] Martin Shadwick, "Defence After Kandahar," *Canadian Military Journal* 10, no. 3 (2010). Consider projects like RADARSAT, calls for more numerous government Arctic research stations, and spending to enhance the domestic role of the Canadian Rangers.
[133] Andrea Charron, "Beyond the Northern Warning System," *War on the Rocks*, 7 September 2020.
[134] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . ..*
[135] House of Commons Standing Committee on Foreign Affairs and International Development, 29.
[136] Michael Byers, "Cold Peace: Arctic Cooperation . . ., 901.

voracious appetite for raw materials.[137] However, Canada can only achieve this through the careful balance of the three ANPF national goals: improved infrastructure, diverse and sustainable industries and Inuit self-determination. To date, Canada's performance in this regard has been poor, in most cases failing to move past aspirational rhetoric to seize opportunities.[138] However, while Canada struggles, assertive nations like China are actively striving to seize these same economic opportunities for themselves.

In some respects, China's Arctic economic interest could be misconstrued as benign; 15% of China's marine commerce will eventually pass through the NSR and NWP, Chinese industry has mining expertise, and the effects of Arctic warming are already creating adverse metrological reactions within mainland China.[139] Far from benign however, China has attained a level of economic power where it can confidently manipulate geopolitical decision-making.[140]

Defining itself as a "near-Arctic nation" with self-determined regional interests, China added the Arctic to its global Belt and Road Initiative (BRI) in 2017.[141] The following year it proposed forming a new Arctic Council of emerging southern economies to challenge exclusive regional practices.[142] In its Arctic Policy, China

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[137] Protection of the Arctic Marine Environment Committee, 10. Mary River Mine, NU, is one of the most northern mines in the world; Organisation for Economic Co-operation and Development, 11. Global mineral extraction to meet demand is expected to double by 2060.
[138] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*; National Aboriginal Economic Development Board, *Recommendations on Northern Infrastructure to Support Economic Development* (Gatineau, Quebec: NAEBD, January 2016), 1-3, 14, 31.
[139] The State Council Information Office of the People's Republic of China; Department of National Defence, *Defending Canada's Sovereignty: New Threats, New Challenges* (Ottawa: Government of Canada, 2019), 80, 85; Min Pan and Henry P. Huntington, "A Precautionary Approach to Fisheries in the Central Arctic Ocean: Policy, Science, and China," *Marine Policy* 63, (2016): 155.
[140] Timo Koivurova, Liisa Kauppila, Sanna Kopra, Marc Lanteigne, Mingming Shi, Malgorzata (Gosia) Smieszek, and Adam Stepien, *China in the Arctic and the Opportunities and Challenges for Chinese-Finnish Arctic Co-operation* (Helsinki, Finland: Government of Finland, August 2019), 31.
[141] Lanteigne.
[142] Pan and Huntington, 115.

describes itself as a cooperative and fair economic partner who respects the rule of law and the territorial integrity of partners.[143] However, debt-trap BRI contracts and its recent actions in the South China Sea display China for what it is: opportunistic and aggressive, aspiring to secure its own economic prosperity both within and outside of the bounds of international norms.[144] These activities have already begun to play out in the Arctic. Following Western sanctions, China was quick to capitalize on Russia's economic weakness and normalize its presence in the Arctic by purchasing primary industries through its state-owned corporations.[145] Predatory China has developed the economic and technical capacity to challenge the autonomy of Arctic nations within their own economic exclusion zones (EEZ).[146] To counter this, Canada must be vigilant and more rapidly develop sustainable domestic industries, insulated from aggressive foreign economic attack.[147] However, China is not alone in this economic advance on the Arctic, as other Indo-Pacific and European nations are developing robust policies and ambitions of their own.[148]

Illegal fishing is becoming a more persistent economic and environmental issue within the EEZs of Arctic nations.[149] Driven by the collapse of coastal fish stocks and

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[143] The State Council Information Office of the People's Republic of China.
[144] House of Commons Standing Committee on Foreign Affairs and International Development, 22, 38; Koivurova *et al.*, 33; Canadian Security Intelligence Service, *China and the Age of Strategic Rivalry*, (Ottawa: Government of Canada, 2 May 2018), 8; Department of National Defence, *Defending Canada's Sovereignty:. . .,* 83.
[145] Bryan J.R. Millard and P. Whitney Lackenbauer, "Trojan Dragons? Normalizing China's Presence in the Arctic," Policy Paper, *Canadian Global Affairs Institute*, June 2021; Pan and Huntington, 155; Department of National Defence, *Defending Canada's Sovereignty:. . .,* 83; Corporate examples include; Chinese National Petroleum Corporation, Chinese National Offshore Oil Corporation, and China Petroleum and Chemical Corporation.
[146] O'Shaughnessy and Fesler, 69.
[147] House of Commons Standing Committee on Foreign Affairs and International Development, 38.
[148] Lanteigne.
[149] Pan and Huntington, 155;

species migration, 41% of Arctic marine traffic is from fisheries.[150] While Canada has signed a treaty protecting the Arctic Ocean from illegal fishing and agreed to increased economic intelligence activities throughout the region, Canada's ability to monitor and affect its expansive EEZ is limited.[151] The region is also witnessing an increase in marine traffic from tourism, commerce and independent research vessels, which bring with them an increased risk to environmental and human safety.[152] To counter this communal safety challenge, the Polar Code was brought into effect in 2019 for all shipping transiting through the region.[153] The code enforces environmental, ice survivability, navigation, cargo restrictions, safety equipment and reporting requirements for all transiting vessels. However, individual nations must readily enforce this within their own EEZs.[154]

While treaties and regulatory standards offer some protection, Canada remains challenged in two key areas. First, despite additional funding towards northern communities and trade corridors, Canada's expansive Arctic remains largely uncharted, perpetuating hazards (Figure 2.3).[155] Second, in the event of a maritime disaster, all of Canada's primary search and rescue (SAR) assets are located in the south of the country, only conducting northern air and sea operations episodically.[156] While Public Safety Canada (PSC) is leading the development of a more efficient framework to employ the

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[150] Protection of the Arctic Marine Environment Committee, 11.
[151] Department of Fisheries and Oceans, *2021-22 . . .,* 5; Department of Fisheries and Oceans, *International Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean*, last modified 25 June 2021, https://www.dfo-mpo.gc.ca/international/arctic-arctique-eng.htm.
[152] Department of National Defence, *Strong Secure Engaged: . . .*, 50.
[153] International Marine Organization, "International Code for Ships Operating in Polar Waters (Polar Code)," last accessed 23 January 2022. https://www.imo.org/en/OurWork/Safety/Pages/polar-code.aspx.
[154] International Marine Organization.
[155] Infrastructure Canada, *Investing in Canada: Canada's Long-term Infrastructure Plan* (Ottawa: Government of Canada, April 2018), 62; Transport Canada, "Transportation 2030: Waterways, Coasts and the North," last modified 26 November 2019, https://tc.canada.ca/en/corporate-services/transportation-2030-waterways-coasts-north.
[156] Charron and Fergusson, "NORAD: Beyond Modernization," . . ., 37.

Canadian Coast Guard (CCG) and Royal Canadian Air Force (RCAF) SAR assets, the lack of suitable logistics infrastructure for planes, helicopters and ships is a significant constraint.[157] Further, as with economic planning, GC departmental planning must also account for the economic vision, desires and sensitivities of the Inuit communities themselves.

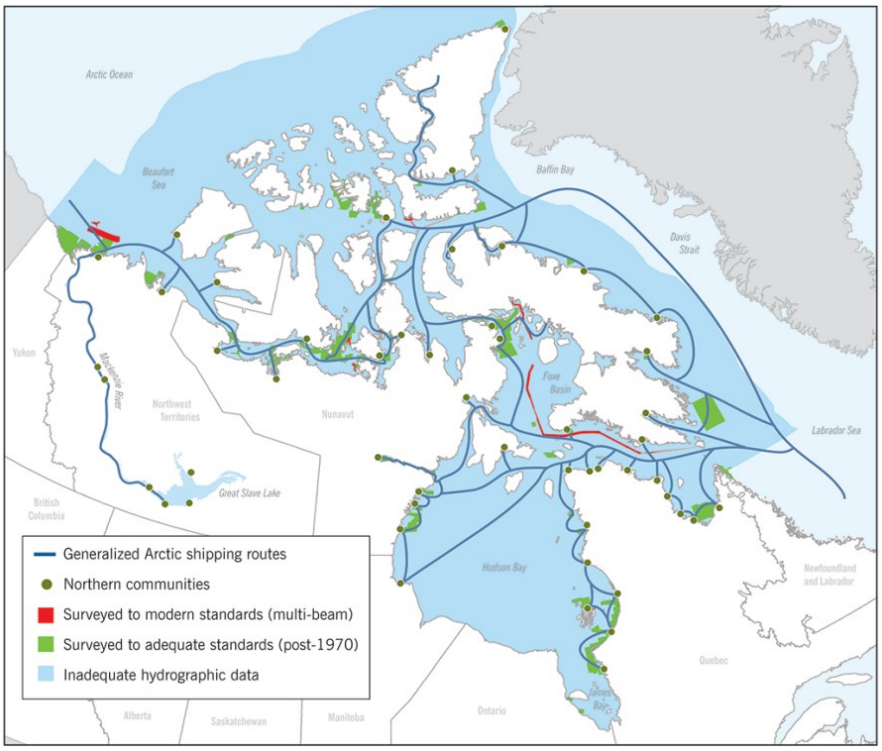

Figure 2.3: Present and Future Shipping Routes in Canada's Arctic

Source: Office of the Auditor General, "Chapter 3 – Marine Navigation in the Canadian Arctic," in *2014 Fall Report of the Commissioner of the Environment and Sustainable Development* (Ottawa: Government of Canada, 2014).

[157] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . ..*; House of Commons Standing Committee on Foreign Affairs and International Development, 82-83. It presently takes fixed wing SAR a minimum of 9 or 10 hours to arrive at the scene of a suspected incident, with very little ability to interact with those on the ground; Dany Poitras, "Search and Rescue on the Arctic," in *Canadian Arctic Operations, 1941-2015: Lessons Learned, Lost, and Relearned*, edited by Adam Lajeunesse and P. Whitney Lackenbauer (Fredericton, NB: University of New Brunswick, 2017), 416-417.

Pivotal to both departmental mandates and national economic ambitions is the cultivation of an Indigenous-led northern economy.[158] Diversified beyond the mining sector, a robust economy would generate varied employment opportunities, increase the availability of social programing and empower Inuit communities.[159] Further, a diverse community-driven economy would retain more revenue within the territories.[160] However, this can only be achieved through GC investment and consultation, which is only fitting given that the region represents a significant economic advantage for Canada on a national level.

While ANPF identifies this requirement for collaborative development, it does not propose how this should be achieved.[161] Some regional leaders caution against the GC's previous strategy of investing extensively in a handful of large projects that do not benefit the wider area and against Ottawa unanimously making environmentally-based economic decisions without Inuit consultation.[162] Thus, a diverse economy demands multi-purpose community-level investment across the region, capable of supporting the myriad of inter-related marine transportation, fishing, tourism, mining, offshore and scientific activities that a changing north allows and the Inuit people need. Not only will these Indigenous-led, GC-sponsored activities contribute to regional prosperity; they will also support Canadian domestic industries against predatory international practices. Failure to achieve

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[158] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*. "Made it Ottawa" polices have not been successful, and the northern future must be put into the hands of northern leaders.
[159] Department of Fisheries and Oceans, *2021 Blue Economy . . .,* 5, 11; Medeiros *et al.*, 645. 36% of the northern economic output is reliant solely on the mining industry;
[160] Standing Senate Committee on Transport and Communications, 7. Half of the royalties and taxes collected on mineral extraction in NWT are paid to the GC, and leave the province.
[161] Kikkert and Lackenbauer, 5.
[162] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . ..*; Wallace. On 20 December 2017, the GC banned oil and gas development in the north for 5 years without consultation with territorial governments.

this, however, would significantly compromise Canada's economic potential and leave the nation's population vulnerable to manipulation through the information domain.

Canada's North and the Information Environment

The information environment (IE) is a composite of events, circumstances and influences that occur in the physical and digital world to create desirable or undesirable reactions within human consumers.[163] At the strategic level, all events, actions or inactions add or detract from the desired national narrative.[164] Western nations readily employ the IE to create legitimate narratives for domestic and international audiences. However, unfavourable conditions in the rules-based global order have driven adversarial nations to use IE and cyberspace to compete using convincing false narratives, half-truths and disinformation campaigns.[165] These insidious foreign messages misconstrue or blatantly fabricate events to exploit strategic vulnerabilities in competitors, cause domestic instability and degrade the resilience of democratic institutions.[166] Canada's inconsistent investment in the north, expressions of resolve without action, unclear economic plan and ongoing Indigenous reconciliation efforts are potential targets for this disinformation.[167] The potential threat of IE manipulation to halt or even reverse Canada's ANPF efforts exists, and must be mitigated if Canada is to pursue northern development efficiently. Using the DME=I model, three key IE challenges become apparent.

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[163] Department of Defense, JP 3-0, *Joint Operations* (Washington D.C.: Joint Force Development, 17 January 2017), xv.
[164] Lee Bellemore, "Debunking Information Operations." Lecture, Canadian Forces College, Toronto, ON, 10 January 2022, with permission.
[165] Briggs, 45.
[166] *Ibid*, 47; Inuit Circumpolar Council.
[167] Roger Robinson, "China's 'Long Con' in the Arctic must be Countered," *The Ottawa Citizen*, 14 September 2013.

Diplomatically, the divisive implications of an overt US challenge to Canada's claim over the NWP via surface vessel navigation would be significant.[168] However, the US is only likely to go to this extreme if it perceives that Canada has become incapable of defending the northern approaches to the continent.[169] Thus, Canada must continue to invest in its military capabilities, commensurate to the international threat, if it is to continue to be a viable continental defence partner and be permitted to "borrow" niche US assets as required.[170]

These GC security investments must also counter Russian and Chinese disinformation and cyber campaigns aimed at destabilizing unfriendly governments.[171] As a petro-state, Russia has a specific interest in environmentally-focused disinformation campaigns that discredit foreign government policies and polarize public opinions. These campaigns often inhibit the responsible growth of domestic economies and infrastructure by complicating the social narrative surrounding them.[172] The already glacial pace of Canada's northern development can ill-afford to slow further. The GC must recognize the physical effects disinformation causes and guard against it by responsibly controlling the narrative through relevant scientific studies.[173] However, to do this effectively, Canada must expand the scale and scope of its capacity to conduct scientific research throughout the north by increasing regional accessibility.

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[168] Lajeunesse and Huebert, 234. Such an event is not without precedent; in January 2019, Vice-president Spence stated that the US must demonstrate their ability to navigate freely through the Arctic.
[169] Department of Defense, *Report to Congress:* . . ., 6-7.
[170] Lackenbauer, "'Defence Against Help':. . ., 1.
[171] House of Commons Standing Committee on Foreign Affairs and International Development, 30; Piskunova, 855; Briggs, 52.
[172] Jackson Bellamy, *Climate Change Disinformation and Polarization in Canadian Society* (North American and Arctic Defence and Security Network, 18 December 2020), 4-5.
[173] Andrew Revkin, "Science-Based Reporting and Countering Misinformation," *Council on Foreign Relations*, 12 May 2020.

Economically, China has a keen interest in limiting, if not entirely controlling, Canada's northern economic development. China has made concerted efforts, aligned with its global BRI, to control foreign territory through its state-owned corporations.[174] In the past, these efforts have taken the form of aggressive contracts and trade policies, debt-trap investments, curtailing the freedom of expression to control the narrative, and enticement of corporate and political leaders.[175] Canada's present economic inequalities and internal social tension represent key vulnerabilities in the GCs national narrative that could be attacked.[176] Canada's Indigenous populations are particularly vulnerable to these efforts, as food security, transportation infrastructure inequalities, lack of basic municipal service and limited economic opportunities create a widening gap between north and south.[177] In the development of ANPF, Canada has sought to unite a patchwork of spending and social initiatives to allay growing concerns over Canada's lack of forethought and responsible northern development.[178] However, resolve is not action, and it is only through action that the GC can gain the initiative in the northern IE.[179] Through its subordinate departments, the GC must *do* more to secure its national narrative of responsible government and progressive development, expressive rhetoric is not sufficient.

Western nations are no longer the exclusive purveyor of timely information to their citizenry. Instead, adversaries actively manipulate the truth and create false

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[174] Briggs, 49-52.
[175] Canadian Security Intelligence Service, 8.
[176] Briggs, 49.
[177] Standing Senate Committee on Transport and Communications, 2-5; Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*; Organisation for Economic Co-operation and Development, 11.
[178] Kikkert and Lackenbauer, 4.
[179] Inuit Circumpolar Council.

narratives towards their strategic goals. Canada will not be immune to these subversive counter-narratives and must therefore proactively develop ANPF in concert with a GC-wide IE campaign.

Synthesis

Analysis of the combined national and international ANPF objectives using the DME=I model has demonstrated that Canada's ambitions cannot be determined in isolation. Other nations are actively trying to subvert and deny Canada its right to self-determination for multiple self-serving reasons. However, understanding these international pressures has yielded four key conclusions that must guide the GCs future implementation of ANPF.

First, the regional cooperation of the Arctic Council is crucial to diplomatic and economic stability in the region. Canada must promote itself as a council leader by contributing more to regional scientific research, economic policy development and soft-power opposition to non-regional nations who would seek to develop unsustainable Arctic economies. Second, Canada must develop multi-use regional infrastructure that supports self-determined national interests as well as alliance military needs. Such infrastructure must enable the projection and sustainment of national security and regulatory assets into the region in a scalable manner that permits Canada to continue to "borrow help" from the US without sacrificing national soft power capabilities. Third, Canada must develop domestic industries and infrastructure across the north that support diverse self-determined Indigenous economic activities. Infrastructure planning must prepare for an increase in the municipal, social and transportation services that increasing economic activities will bring and permit the persistent projection of GC departments

throughout the EEZ. Finally, Canada can only take the initiative and gain control of its northern IE narrative through action. Current environmental, economic and diplomatic frailties create points that can be attacked by divisive disinformation campaigns and must be proactively guarded. If Canada wishes to see ANPF realized, it must recognize the broader international conditions it is working within and mitigate potential threats.

Conclusion

DME=I analysis of ANPF's national and international-level goals provides context to the opportunities and challenges Canada will face from the wider international community. It has produced four inter-related conclusions that the GC must use to guide and prioritize ANPF development through the competing influences of environmental change and international pressures. The clear implication found throughout Chapters 1 and 2 is that the GC cannot passively wait for the environmental and international situation in the north to improve in either permissibility or clarity. It will not. Waiting will cause the GC to lose the initiative in both the physical and informational environments and risks failure of its national ambitions for a prosperous, united and self-determined future. Thus, Canada must advance its northern agenda through bold yet deliberate action, building on the government and economic activities already in place and developing the capacity to seize new opportunities.

Building on these environmental and international threats, the next chapter details the present state of Canada's northern development and the inherent risks of continuing to pursue a disjointed federal approach. It will present the NOSH as a means of unifying government efforts to overcome bureaucracy and highlight the educated risks that must be taken to advance ANPF. The GC cannot passively wait for the circumstances and

unknowns surrounding Canada's north to improve, proactive efforts must be invested to understand and improve the situation.

CHAPTER 3: PRESENT PERFORMANCE AND THE NOSH PROPOSAL

Introduction

ANPF represents a concerted GC effort to guide departmental efforts in addressing emerging diplomatic, economic and security threats posed to Canada through the north. It seeks to stimulate cross-disciplinary action at the speed of relevance necessitated by climate change.[180] Unfortunately, while ANPF highlights the requirement for change, it fails to provide departments with a viable governance framework to achieve it or a comprehensive vision of the desired physical results. Most worryingly, ANPF incorrectly assumes that the current governance structure and delegated departmental authorities are sufficient to meet the rigours of the task.

This chapter seeks to address these fatal flaws over three sections. The first highlights ANPF's inefficiencies and stagnation under the current bureaucratic approach and demonstrates the requirement for an appropriately resourced and better-enabled lead department. It also demonstrates the significance of infrastructure to Canada's northern ambitions. The second advances this concept by presenting the NOSH initiative as a multi-disciplinary solution to the norths varied needs. The final section highlights four critical considerations to northern planning and the requirement for cross-functional collaboration and timely decision-making. Overall, this chapter seeks to demonstrate that the implementation of ANPF cannot be managed as a centrally-managed GC *policy* but must be progressed as a series of coordinated yet discrete departmental *projects*.

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[180] John Conger and Shiloh Fetzek, *A Climate Security Plan for Canada: How the Government of Canada can Combat the Risk of Climate Change* (Washington, DC: The Center for Climate and Security of the Council of Strategic Risk, January 2021), 42; Department of National Defence, *Joint Managed Readiness Program: The CAF Joint Training Plan (FY 21/22-FY 23/24)* (Ottawa: Government of Canada, June 2021), 15. "Speed of relevance".

The Results of Centralized Policy Approach to ANPF

The GC highlights crucial strategic tasks and inter-departmental relationships to ministers through Mandate Letters.[181] These letters routinely direct multiple departments to collaborate under a lead department on cross-cutting issues and present solutions to Cabinet for approval. In principle, this deliberate, though time-consuming process ensures that the actions of one department do not subvert the actions of another or counter-act broader whole-of-government efforts. Unfortunately, in practice this process inhibits timely decision-making and development, arguably promoting bureaucratic process over practical effect.

This trend is particularly true in Canada's north, where the pace of climate change, reliance on central GC solutions and a lack of departmental authority to develop necessary infrastructure is readily playing out. The world is moving faster than it did a decade ago, challenging Canada's bureaucratic practices and inter-departmental relationships to remain relevant.[182] Using the three categories of ANPF objectives, this section will briefly demonstrate why Canada's current approach to northern development is untenable and must change.

Regional Objectives

While the GC is progressively devolving greater legislative power to Territorial governments to align them more closely with the Provinces, the inconvenient truth remains that Territories do not possess the economic base to provide social service to

[181] Prime Minister's Office, "Prime Minister releases new mandate letters for ministers," *Government of Canada*, 16 December 2021.
[182] Joseph Biden, *Interim National Security Strategic Guidance* (Washington D.C.: White House Press, March 2021), 22. As this document remarks, "We will reform and rethink our agencies, departments, interagency processes, and White House organization to reflect this new reality."

their citizenry unilaterally.[183] Territories remain heavily dependent on Federal departments to realize ANPF's regional objectives (Figure 3.1). Acknowledging this, the GC revitalized the departments of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and Indigenous Services Canada (ISC) to facilitate Indigenous consultation and implement cross-disciplinary solutions to northern problems.[184]

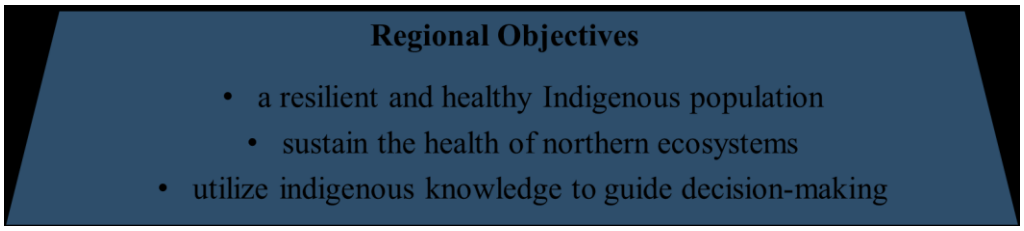

Figure 3.1: ANPF Regional Objectives

Source: Author's design from ANPF.

Unfortunately, due partly to the GC's Mandate Letter identifying CIRNAC as the lead department for northern development, this federal revitalization has done little to substantively reverse historic under-investment and inattention to the north.[185] With a small, dispersed staff and limited budget, CIRNAC has struggled to effectively oversee and enable the actions and investments of other government departments (OGDs).[186] For instance, central investment in social services remains unrepresentative of the pressing

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[183] Department of Intergovernmental Affairs, "Provinces and Territories: Differences Between Provinces and Territories," last modified 19 November 2021, https://www.canada.ca/en/intergovernmental-affairs/services/provinces-territories.html.

[184] Prime Minister's Office, "Minister of Crown-Indigenous Relations Mandate Letter," *Government of Canada*, 16 December 2021; Prime Minister's Office, "Minister of Northern Affairs, Minister responsible for Prairies Economic Development Canada and Minister responsible for the Canadian Northern Economic Development Agency Mandate Letter," *Government of Canada*, 16 December 2021.

[185] Crown-Indigenous Relations and Northern Affairs Canada, "Mandate," last modified 9 February 2022, https://www.rcaanc-cirnac.gc.ca/eng/1539285232926/1539285278020. This document notes, "CIRNAC continues to … lead the Government of Canada's work in the North."

[186] Crown-Indigenous Relations and Northern Affairs Canada, *Departmental Plan 2021-22* (Ottawa: Government of Canada, 2020), 32-33. Approximately 1000 full-time personnel and $2 billion budget for fiscal year 2022-23.

climate threats facing northern communities (Figure 3.2).[187] This trend is illustrative of the ignorance of numerous OGDs to emergent northern issues. Such inattention serves only to reinforce the infrastructure, and by extension the socio-economic, inequalities between north and south.[188]

Figure 3.2: CIRNAC and ISC Expenditure 2018 / 19

Source: Indigenous Services Canada, *Transition 2019 Indigenous Services Canada overview - Book 1* (Ottawa: Government of Canada, 13 February 2020).

This dichotomy begins when one-size-fits-all national policies are applied without consideration for the isolated and precarious nature of Inuit life. For instance, ECCC is striving to eliminate single-use plastics by 2030 and create a net-zero emissions electricity grid by 2035 nationwide.[189] Changes like these are not presently possible in Canada's north, where disparate communities rely exclusively on fossil fuels for heating

[187] This is not to infer that southern Indigenous communities are less deserving of investment, only that northern communities are disadvantaged in accessing needed investments through their isolation and bureaucratic practices.
[188] House of Commons Standing Committee on Foreign Affairs and International Development, 11. The "infrastructure gap".
[189] Prime Minister's Office, "Minister of Environment and Climate Change Mandate Letter," *Government of Canada*, 16 December 2021; Prime Minister's Office, "Minister of Natural Resources Mandate Letter," *Government of Canada*, 16 December 2021.

and electricity, and on single-use plastics carried north on the annual sealift.[190] Generically applied southern policies will serve only to exponentially increase the northern cost of living. To whit, some OGD annual plans contain no acknowledgement of emergent issues in northern Canada at all and no specific initiatives or policies to address challenges to their traditional lifestyle.[191] While not representative of all departments, this general trend of failing to adapt southern policies for northern realities directly inhibits ANPF and demonstrates CIRNACs managerial limitations. The GC's unnecessarily constrained and ponderous approach to planning is causing ANPF regional goals to stagnate. While CIRNAC is enabling community engagement and dialogue, Indigenous answers are not informing government action. Worse, this lack of substantive progress is deepening Indigenous resentments over seemingly "southern solutions to northern problems."[192]

To reverse this, the GC must accept more risk by allowing departments to consult with northern stakeholders more readily and implement plans independently from, though informed by, CIRNAC. Examples of successful departmental initiatives include DND's Canadian Ranger (CR) and Junior CR programs, and the Department of Fisheries and Oceans (DFO) Indigenous Recruitment Initiative to service operations in four Nunavut harbours.[193] The success of these limited projects must be capitalized on and leveraged to expand the latitude afforded to large, well-resourced federal departments to pursue ANPF

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[190] House of Commons Standing Committee on Foreign Affairs and International Development, 109; Simon. It is estimated that in 2011, Northern communities consumed 258 million litres of fossil fuels and released 800,000 tons of greenhouse gases.
[191] Health Canada, *Health Canada's Departmental Plan 2020-21* (Ottawa: Government of Canada, February 2020); Royal Canadian Mounted Police, *2020-21 Departmental Plan* (Ottawa: Government of Canada, 2020).
[192] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*.
[193] Department of National Defence, *Strong Secure Engaged: . . .*, 80. Initiative 108; Department of Fisheries and Oceans, *2021-22 . . .,* 11, 37.

goals. While Cabinet and CIRNAC have central roles in this process, greater risk must be accepted if ANPF is to meet the speed of relevance demanded by climate change.

National Objectives

ANPF's regional goals form the foundation from which national goals must be achieved (Figure 3.3). Similar to the regional level, Territorial governments remain reliant on Federal government support to create independent economic and infrastructure development strategies. Therefore, it again falls on GC departments to exercise their mandates on behalf of the north.

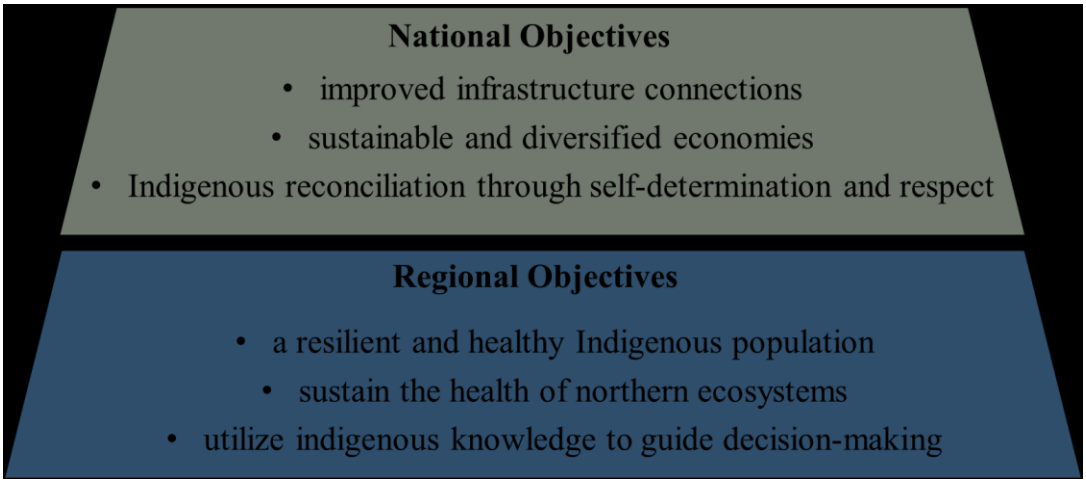

Figure 3.3: ANPF National Objectives

Source: Author's design from ANPF.

The single most significant challenge to ANPF is the lack of infrastructure connection between north and south. While the degree of connectivity with southern provinces varies widely by Territory, most communities are isolated by geography and have highly constrained and seasonally vulnerable supply lines available to them (Figure 3.4). This paucity of multi-modal sustainment capacity aggravates Indigenous food insecurity and prevents economic growth. The GC is acutely aware of this and is actively

seeking to address it.[194] As the national authority on infrastructure planning, Transport Canada has committed to investing $1.8 billion in northern infrastructure.[195]

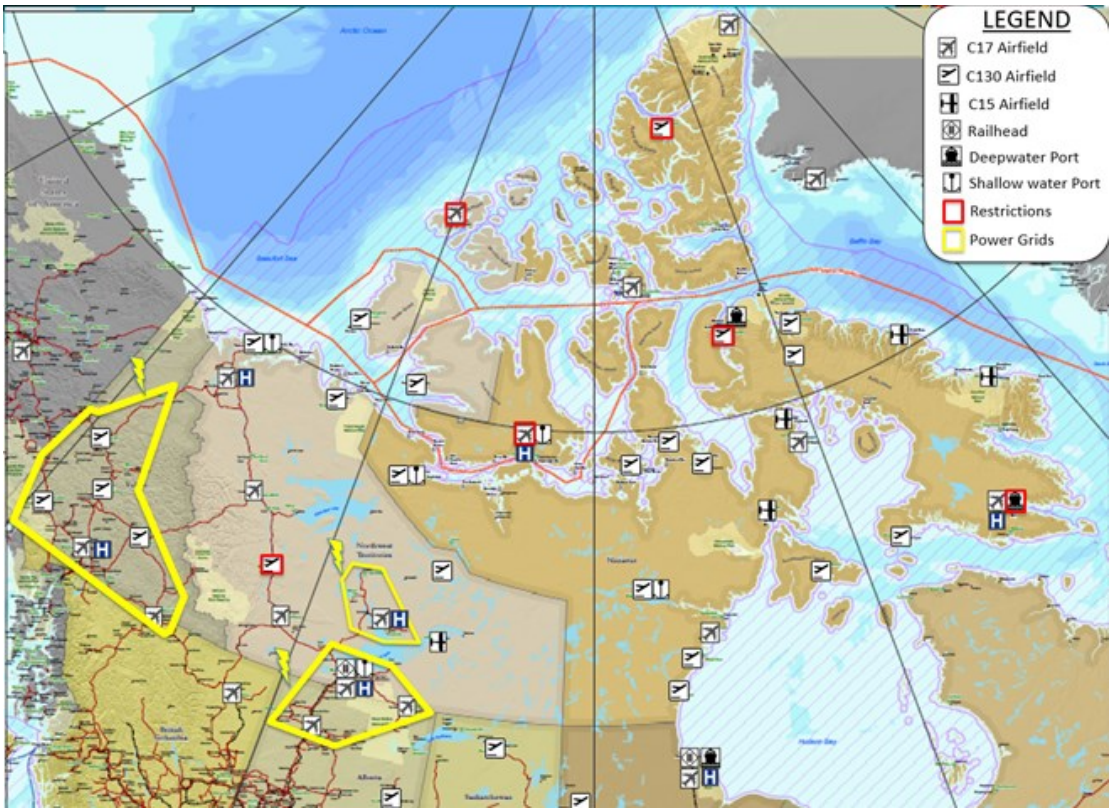

Figure 3.4: Arctic and Northern Infrastructure Map

Source: Author's design for CJOC Arctic Mission Analysis Brief, 19 November 2019.

With ports and airports forming the vital linkages between communities, GC departmental investment is rightly focusing on improving these critical enablers of broader growth.[196] However, simply encouraging disconnected infrastructure projects,

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[194] Silver.

[195] House of Commons Standing Committee on Foreign Affairs and International Development, 105. $571 million in Northwest Territories, $446 million in Yukon and $567 million in Nunavut; Transport Canada, "Government of Canada introduces new measures to protect the marine environment and coastal communities in Canada's Arctic," *Government of Canada*, 27 August 2017. $175 million in the Arctic Ocean Protection Plan.

[196] Standing Senate Committee on Transport and Communications, 7; House of Commons Standing Committee on Foreign Affairs and International Development, 106. The economic loss from the continued delays in opening Iqaluit's deep-water port is estimated at $30 million.

executed by skilled southern tradespersons, does little to address the fundamental economic needs of northern communities or advance reconciliation efforts. Critics remain skeptical of the effects and sustainability of these singular investments without a comprehensive development strategy or robust north-south supply network.[197] Further, as Chapter 4 will show, construction costs in Canada's north are incredibly inflated, and the sums of money being put forward by the GC are unlikely to be commensurate with the task.

This absence of an articulated federal vision for a northern infrastructure system directly obstructs the advancement of ANPF's socio-economic and cultural objectives. It is also forcing individual communities to recklessly court foreign investors and predatory Chinese corporations in an effort to attract growth.[198] Consultation and meaningful consideration of the needs of Indigenous communities and Territorial governments are essential to ANPF's success. A holistic vision that addresses the north's human, environmental and socio-economic requirements is necessary if development is to be sustainable. Most importantly, failure to provide post-secondary education, communications technology, skills training and diverse employment opportunities to northern communities fundamentally undermines any efforts made towards reconciliation by disabling and marginalizing the Inuit peoples.[199] While departments are individually striving to create employment opportunities within their specific portfolios, no practically

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[197] Simon; House of Commons Standing Committee on Foreign Affairs and International Development, 104.

[198] House of Commons Standing Committee on Foreign Affairs and International Development, 105; Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*. Business leaders interviewed during ANPF solicitation identified the lack of northern economic development vision is a significant impediment to investment and prospective development. While examples of predatory Chinese economic activity exist worldwide, specific Canadian examples include the Grays Bay road project and the Hope Bay goldfield purchase.

[199] Simon; Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*.

applicable GC strategy exists to unify these diverse and complex elements.[200] As a result, the crucial national-level of ANPF is being left to the purview of loosely coordinated departmental efforts that cannot inspire or coordinate holistic change.

International Objectives

This under-development of the lower echelons of the ANPF strategy destabilizes Canada's international ambitions within the Arctic region (Figure 3.5). These international objectives fall primarily to the GC's security community to plan and pursue and are discussed below along the themes of equipment, awareness and coordination.

Figure 3.5: ANPF International Objectives

Source: Author's design from ANPF.

Equipment is often perceived as the panacea for security issues; the more technologically advanced the capability, the greater its operational capacity and deterrence. The GC has numerous ongoing multi-billion dollar equipment projects to

[200] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic. . ..* For example, the CCG is expanding their Arctic Canadian Coast Guard Auxiliary in northern communities.

enhance its international agenda.[201] However, the equipment itself does not generate operational capacity; it requires a system of well-positioned sustainment infrastructure linked to national supply lines to enable its function. This is particularly relevant when planning continental defence and deterrence activities in northern Canada, where the frequency and intensity of operations are acutely constrained by barren geography and restricted north-south logistics.[202] Thus, equipment alone does not secure the north without the infrastructure to sustain its permanence.

As equipment cannot readily remain in challenging northern conditions, it is imperative to project it into the north when required. The ability to monitor continental approaches for economic, military and criminal activity and environmental hazards, therefore, becomes vital.[203] This monitoring is principally achieved through the joint efforts of DND's Operation LIMPID, DFO's Marine Security Operations Centres (MSOCs) and Transport Canada's Civil Aviation and National Aerial Surveillance Programs (NASP).[204] In support of NORAD, these complimentary operations form a national surveillance system for Canada's EEZ.

However, these departments are currently not resourced to meet the evolving Arctic challenge. For example, Operation LIMPID lacks a full suite of modern subsurface Arctic sensors. The Enhanced Satellite Communication Project–Polar to enable space-

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[201] Department of National Defence, Strong Secure Engaged: . . ., 13, 37. Examples include Canada's National Shipbuilding Strategy, fifth generation fighter procurement project and investigation of semi-amphibious Arctic utility vehicles.

[202] Darwin Ziprick, *Leveraging Air Mobility to Support Canadian Arctic Sovereignty* (Joint Command and Staff Program Course Paper, Canadian Forces College, 24 December 2014), 57. Ziprick contends that the sustainment issue in the north is akin to CAF experiences in Afghanistan; however, the author posits that it is far worse due to the geographic distances involved and absence of connecting supply routes.

[203] Department of National Defence, *Strong Secure Engaged: . . .*,64.

[204] Department of National Defence, *Strong Secure Engaged: . . .*, 63-65; House of Commons Standing Committee on Foreign Affairs and International Development, 75;

based military communications and monitoring remains undefined and unfunded.[205] DFO does not presently operate an Arctic MSOC, and while NASP has allocated $29.9 million for a complex in Iqaluit, it cannot project Dash 7 and 8 aircraft throughout the Arctic from a single airfield.[206] Thus, while GC departments have a level of cooperation and complementary mandates, they lack the infrastructure and resources to monitor this emerging front.

Using the equipment and monitoring systems above, NORAD coordinates military response to air and marine threats to North America by enforcing anti-access and area denial (A2AD) against would-be aggressors.[207] NORAD's northern infrastructure consists of four Forward Operating Location airbases (FOLs) and the DEW Line radar sites. While funding for NORAD Modernization will significantly improve the monitoring function, it will likely do little to enhance NORAD's northing basing options or logistical connections with southern industry.[208] As such, the execution of NORADs task of defending the continental approaches, and DND's task of securing Canada from attack, remain principally constrained by the infrastructure necessary to transport and sustain operations. To meet its mandate against more pervasive and complex threats, NORAD requires more robust north-south logistical corridors above the 60th Parallel,

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[205] Elinor Sloan, "Communications satellites in Canadian security policy: History and prospects," *International Journal* 76 (2), (2021): 215;
[206] Transport Canada, "Marine Security Operations Centres," last modified 23 September 2020, https://tc.canada.ca/en/marine-transportation/marine-security/marine-security-operation-centres; Transport Canada, "Government of Canada introduces new measures to protect the marine environment and coastal communities in Canada's Arctic," *Government of Canada*, 27 August 2017.
[207] Briggs, 50.
[208] The Conference of Defence Associations Institute, "NORAD Modernization Report One: Awareness and Sensors," last modified 16 September 2020, https://cdainstitute.ca/norad-modernization-report-one-awareness-sensors/; Andrea Charron and James Fergusson, *Beyond NORAD and Modernization to North American Defence Evolution* (Centre for Defence and Security Studies, May 2017), 1, 3.

increased hangar space, ammunition storage, runway repair, refueling and accommodations infrastructure.[209]

In sum, Canada has the organizations and operational experience to achieve ANPF's international ambitions but lacks the necessary northern connectivity and infrastructure. Moreover, the rate of environmental change is proving dated plans and resource allocations insufficient to the task of securing Canada from an increasingly wide range of complex and bellicose threats. As such, the GC must evolve a comprehensive and cost-effective solution to Canada's varied regional, national and international requirements.

Synthesis of Canada's Current Approach to ANPF

Canada's departmental approach to ANPF yields mixed results that, while often positive, are not progressing at the speed of relevance demanded by climate change. Analysis of the ANPF objectives yields two key findings. First, CIRNAC is under-resourced to act as the lead department, and must either be given commensurate resources or the GC must establish a new action-oriented ANPF governance structure. Second, infrastructure underpins all eight ANPF objectives and requires a comprehensive practical vision to guide collaborative departmental efforts and inspire private economic investment. Leveraging these findings, the NOSH initiative will now be proposed.

The NOSH Initiative Defined

At present, northern communities rely on expensive air transportation and constrained annual sealift as their only means of sustainment. These systems are already

[209] The author's conclusions reached while working within the Director General Support staff at CJOC HQ.

stressed and do not have the residual capacity to support increased GC operations without adverse effects on Indigenous peoples. Thus, the GC must first reinforce and expand critical infrastructure and existing supply chains before increasing northern operations. Further, in order to avoid unnecessary expenses incurred by seasonally transporting common-use materiel and small equipment to and from routine operations, the cost efficiency of northern storage and maintenance options must be explored.[210]

The NOSH initiative addresses these challenges and practical limitations to northern logistics through a graduated system of dispersed sustainment nodes. The NOSH aims to establish the minimum operational support conditions to efficiently sustain whole-of-government operations throughout the north by addressing transportation infrastructure deficiencies in key communities.[211] This must be achieved by strengthening the intersection of land, sea and air sustainment at crucial points throughout the region and developing robust connections to southern supply lines. Concurrently, efficiencies must be realized by developing multi-use facilities, which are responsive to the wide range of security, scientific, and public health operations that the GC must pursue.

Additionally, the NOSH initiative must serve to progress reconciliation efforts, enhance social programs and stimulate enduring economic growth. Indeed, the success of both ANPF and NOSH lies in efficiently servicing the overlapping commonalities between progressive government initiatives, departmental operations, economic growth and community cultural and socio-economic requirements. As such, the NOSH is not just

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[210] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," presented to Commander CJOC on 13 October 2021. DND incurs approximately $15.5 million in transportation costs each year in support of N-Series Operations, the Canadian Army Arctic Warfare Centre and CR routine operations. While this is cost effective now, as these, and other operations expand in size, scope and duration, their sustainment will become cost prohibitive.

[211] *Ibid*.

a system of infrastructure; it is an initiative to define and realize these commonalities at the speed demanded by environmental change.[212]

While a member of DND's Canadian Joint Operations Command (CJOC) Headquarters, the author assisted in the development of the NOSH design presented below from January to July 2021. The design is preliminary and significant work remains to refine and socialize the siting and composition of joint logistics hubs. The plan below was created through a three-part design methodology. First, an understanding of northern infrastructure limitations and their effect of DND operations was considered. Subsequently, an initial NOSH statement of infrastructure requirements was generated by CJOC and solicited to Canadian Army, Royal Canadian Navy and RCAF planners for their feedback. Finally, the NOSH concept was shared for comment with OGDs through the Assistant Deputy Minister's Arctic Working Group in June 2021. It is presented here only to spark discussion and concept refinement, not as a fait accompli.[213]

In the development of this concept, Commander CJOC placed five foundational planning constraints on the team. First, all hubs must be located north of the 60th Parallel so that the economic benefits of construction and operation remain within northern communities. Second, hubs must be sited on existing transportation infrastructure to limit construction costs. Third, NOSH human resource (HR) and utilities requirements must complement and be sustainable by local communities. Fourth, departmental operations must be self-sufficient for food, fuel and materiel, and cannot burden logistically

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[212] *Ibid*.

[213] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . .. No inference should be made that identified communities have been consulted, or that decisions regarding siting have been made. The identification of communities is provided solely to highlight the characteristic and dispersion required by NOSH. Significant Indigenous consultation and scientific study are required to refine and advance NOSH site selection.

constrained northern communities. Finally, while distinct from NORAD, NOSH must enhance NORAD's concept of operation by improving logistical synergies and airfield basing opportunities.[214] The preliminary NOSH proposal was developed using these constraints (Figure 3.6).

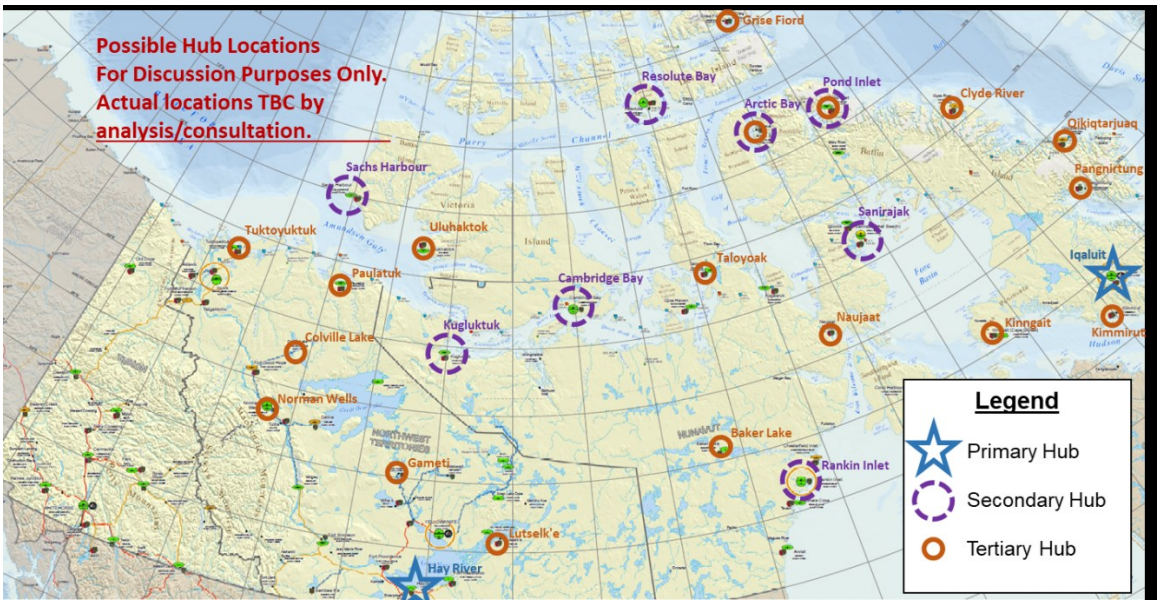

Figure 3.6: Northern Operational Support Hub Concept

Source: CJOC HQ's NOSH Placemat, dated 13 October 2021.

To achieve its aim the NOSH system relies on three classes of hub to transit sustainment as efficiently as possible by sea, land and air to the point of operation. As dispersed GC operations cannot deny local communities resources, operational resupply must be pushed from the south to as close as possible to the area of operation, ensuring the integrity of mission effects coverage. Further, as operations will occur in austere locations, there is a requirement to efficiently transition stores from larger transports to smaller ones, known as the hub and spoke concept, to meet the infrastructure limitations

[214] CJOC HQ's NOSH Placemat, dated 13 October 2021. Commander CJOC placed these five constraints onto the planning team to ensure analysis and proposed solutions would be aligned with wither DND and GC efforts.

of remote operations. Finally, while NOSH costs and modularity will be discussed in detail in Chapter 4, emphasis must be placed on minimum operational requirements and cost efficiencies through commonality driving NOSH planning and development. To achieve all this, the NOSH system must function as a chain to move sustainment from southern depots to remote northern operations as efficiently as possible.[215]

The most prominent element within this chain are the two primary hubs. Sited in large communities with C-17 Globemaster capable airfields and connection to national logistics terminals, these serve as reliable all-season nodes from which bulk sustainment can be shipped, stored, re-packaged and proliferated through smaller aircraft and vessels.[216] Their importance lies in their positioning at the northern limits of southern supply lines. Primary hubs would see the existing community infrastructure augmented with a 100-person accommodations building, C-17 hangar, heated warehousing, multi-vehicle garage and increased fuel storage. Operated by a permanent core staff of approximately ten, and seasonally surged with additional 20 personnel, these hubs would receive and store bulk traffic throughout the year and support aircraft resupply operations well into the shoulder seasons to increase the permanence of operational effects.[217]

A series of seven secondary hubs would then be serviced and resupplied from these primary logistics centres. Dispersed along the length of the NWP, these secondary hubs provide the chain of logistical support needed to sustain GC's joint air, marine and

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[215] Department of National Defence, CFJP 4-0, *Support* (Ottawa: Government of Canada, 30 June 2021), 2-2, 2-14.
[216] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . .. In the case of Iqualuit, NU this is the airfield and deep-water port scheduled for completion in September 2022. For Hay River, NWT it is the intersection of the airfield, the rail terminus, the shallow-water barge port that services the annual sealift up the MacKenzie River, and its proximity to Highway 1.
[217] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..

scientific operations.[218] Sited in moderately-sized communities with C-130 Hercules capable airfields, these secondary hubs would be augmented by a C-130 hangar, small heated warehouse, single-vehicle garage, fuel farm, littoral transport barge and a submerged sensor workshop to service Operation LIMPID. The workhorse of the NOSH system, secondary hubs provide the capability to move the parts, people and commodities required to sustain GC marine patrolling, SAR and scientific activities at an increased frequency, intensity and duration. Further, these hubs would be well-positioned to respond effectively to environmental or human hazards caused by international marine tourism and shipping. Secondary hubs would be operated seasonally by 15 personnel and closed for winter.[219]

The most austere element of the NOSH proposal are the 15 tertiary hubs positioned to enable rural GC community disaster response, SAR and scientific operations.[220] Selected sites possess a C-136 Twin Otter capable runway and the presence of a CR patrol. Existing infrastructure would be augmented with 160 sqft of cold storage and an office trailer managed by the community. Their purpose is to provide CR patrols and OGDs with readily available essential stores and infrastructure to conduct general operations and respond to emergencies.[221]

When viewed holistically, this graduated system of operational support facilities would allow for a significant improvement in operational responsiveness by allowing the safe pre-positioning of high-demand resources within the Arctic region and reducing

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[218] Sites presently represented are Rankin Inlet, Resolute Bay, Sanirajak, Sachs Harbour, Nanisivik, Kugluktuk and Cambridge Bay

[219] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..

[220] Sites presently represented are Tuktoyuktuk, Norman Wells, Paulatuk, Colville Lake, Gameti, Lutselk'I, Baker Lake, Taloyoak, Naujaat, Kinngait, Kimmirut, Pangnirtung, Pond Inlet, Qikiqtarjuaq and Grise Fiord.

[221] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..

timeframes associated with disaster response. Additionally, NOSH improves inter-departmental cooperation and the generation of joint effects by creating a series of physical nexuses that all GC effects must flow through into the north. Further, by lowering cyclical air transportation costs and timelines, the NOSH increases the frequency, duration and dispersion of northern operations through logistical efficiencies and weather-resistant supply chains. Finally, NOSH will directly enable the advancement of socio-economic and reconciliation efforts throughout the north by creating Indigenous education and employment opportunities, thereby advancing ANPF. However, as NOSH planning evolves from concept to reality, other vital considerations and perspectives must be incorporated into the proposal.

Hub Siting Considerations

The NOSH proposal above was developed and refined based on the feedback and operational requirements of internal DND stakeholders and select OGDs. However, a northern initiative driven by government needs alone will fail to address ANPF objectives and could not be acceptable. This section lists in order of priority the four most vital siting criteria and perspectives that must inform the next stages of NOSH planning. This paper does not seek to offer solutions to these considerations; only to highlight their criticality as decision-making criteria and make observations for their integration into planning processes.

The Primacy of Indigenous Consultation and Community Support

Studying existing infrastructure and analyzing cost efficiencies will all inform the physical composition of the NOSH but alone will not ensure its success. Rather, the crucial precondition for success in the north is Indigenous community support and active

participation. Without it, the development of infrastructure, hiring and training of staff, and integrating daily operations into community life cannot occur. Thus, individual community consultation and agreement are a prerequisite for advancing NOSH planning and ANPF as a whole. NOSH community proposals must offer more than just government infrastructure; they must offer economic opportunity, social programming and cultural protection. Each Inuit community has the right to self-determination of its socio-economic development, and the NOSH must integrate into that vision.[222]

While Territorial governments have endeavoured to develop community infrastructure independently, isolated projects without the benefit of federal investment and robust connection to southern supply chains have been consistently challenged.[223] NOSH offers a different approach in that it creates a comprehensive graduated system, offering connection and economic potential to participating communities. Additionally, it is feasible that responsible, Canadian-owned, private corporations and investors will follow NOSH to leverage these points of stability, reinforcing its success. With community input, NOSH infrastructure can enable the growth of a wide range of local industries and activities and allow hub communities to strengthen economic ties within their regions. While it should not be inferred that support of the NOSH should be "sold" to communities, it is vital that all parties involved find mutually beneficial solutions.

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[222] Silver.

[223] *Ibid*; House of Commons Standing Committee on Foreign Affairs and International Development, 103; Government of Nunavut, "Integrated Community Sustainability Plans Toolkit," n.d., http://www.buildingnunavut.com/en/abouticsptoolkit/abouttoolkit.asp; Government of Northwest Territories, "Community Access Program," n.d., https://www.inf.gov.nt.ca/en/services/community-access-program; Government of Yukon, "Green Infrastructure Program," last modified 2022, https://yukon.ca/en/green-infrastructure-program.

NOSH development cannot be imposed on Indigenous leaders and communities; it can only be guided, nurtured and integrated into existing requirements.[224]

A note must be made here with respect to private-public partnerships (PPP) in northern development. PPP's provide the GC a mechanism to transfer financial or development risk from the government onto private industry, while concurrently leveraging a company's expertise in a specific domain. PPP's represent a cooperation between the GC and a specifically selected corporation for the provision of set services.[225] While a PPP *may* present an opportunity to outsource elements of NOSH achievement, there are inherent risks. PPP's have been criticized as providing poor value-for-money, superficial stakeholder engagement and the potential for administrative mismanagement.[226] Given these risks, and the sensitivity of the GC's engagement with Inuit communities, it is recommended that PPP's not be considered as a primary mechanism for achieving the NOSH, but may be used to fill discreet GC or departmental limitations as identified.

In addition to infrastructure planning, NOSH community proposals must include a comprehensive HR training and education plan to staff and maintain hub operations. NOSH facilities should ideally be staffed from local communities as GC public service employees vice contracted personnel. Local hiring ensures the retention of economic benefits within northern communities and offers enhanced benefits to participating communities. Through Indigenous knowledge and cultural connections, local

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[224] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*.
[225] Matti Siemiatycki, "Public-Private Partnerships in Canada: Reflections on Twenty Years of Practice," *Canadian Public Administration* 58, no. 3 (2015): 358-359.
[226] *Ibid*, 356-357.

employment would also enhance NOSH regional operations.[227] In addition to improving employment diversity in the north, the NOSH initiative would also advance reconciliation through Inuit empowerment and recognition. However, northern communities have relatively small populations and are significantly dispersed. Outside the Territorial capitals, no northern community exceeds 3,600 people, and average communities measure only in the hundreds of citizens.[228] As such, the siting of NOSH facilities must fundamentally consider community demographics, educational opportunities and employment flexibility to balance the needs of NOSH facilities with available human resources.

Finally, NOSH community proposals must acknowledge and invest in Indigenous culture. Proposed new construction must be sited with respect and sensitivity to existing economic activities, spiritual practices and cultural events. NOSH planners cannot impose development planning onto communities; it must be collaborative, respectful and promote equality. This equality includes the integration of Indigenous languages and cultural practices into hub operations. NOSH employees, policies and operations cannot be dictated by the south but must reflect a northern approach to support national objectives. The Inuit are adaptive, resilient and practical, with immense untapped potential to lead and enhance GC northern operations.[229]

Geological and Hydrological Change

The second crucial NOSH siting criteria is the geological and hydrological stability of the selected site. As discussed in Chapter 1, Arctic conditions are changing

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[227] Crown-Indigenous Relations and Northern Affairs Canada, Canada's Arctic . . ..
[228] CJOC NOSH Analysis of community size conducted in March 2021. Average community size in NU is 1,100, NWT is 700 and Yukon is 400.
[229] Inuit Circumpolar Council, "Disappearing Sea Ice . . ..

rapidly and unpredictably. In the NWT alone, permafrost degradation will incur $1.3 billion in damages over the next 75 years and cause millions more in economic disruptions.[230] While assessing *all* northern communities for geological and hydrological security is strongly recommended, potential NOSH sites must be rigorously examined to ensure that infrastructure investment and development are scientifically informed. In addition to geological and permafrost conditions, these scientific surveys must also consider hydrological changes in the surface and subsurface water tables, the migration of chemical contaminants, as well as flora or species migration that would inhibit community function. For secondary hubs, these surveys must also include assessing coastal erosion, geological shifts, and tidal changes that could impact the community's marine approaches.[231] While uncertainty and risk will almost certainly remain, it must be informed risk, mitigated through scientific study and assessment if northern investments are to have any enduring strategic effect. To that end, ECCC-led research and study must be fully integrated into NOSH planning and development.

SAR and Environmental Disaster Response

With the significant growth of marine traffic expected throughout the Arctic, Canada must be prepared to surge departmental resources to unfolding human and environmental disasters in remote and inaccessible areas of the north. However, Canada's current basing of SAR and environmental disaster response capabilities in the south significantly limits its timeliness and capacity to respond to incidents.[232] In addition,

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[230] House of Commons Standing Committee on Foreign Affairs and International Development, 103.
[231] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..
[232] D.G. Hunter, J. Chan and M. Rempel, *Assessing the operational impact of infrastructure on Arctic operations* (Ottawa: Department National Defence, February 2021), 1; Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic* . . .; Poitras, 416-417.

growing change in the region demands a review of the GC's present capabilities and northern disaster response plans.

An effective northern disaster response system would require a strategically sited system of logistics hubs to allow for the rapid and efficient movement and transfer of response equipment into an incident site across multiple methods of supply. This same system must also facilitate the effective extraction of casualties back to medical facilities. The seasonal forward positioning of resources, routine patrolling and monitoring of the EEZ are quickly becoming crucial to the human and environmental safety of the region and the achievement of ANPF.[233]

As such, in addition to supporting routine activities, NOSH infrastructure and multi-modal logistical connections must create the flexibility to surge disaster response operations to high-risk areas. Such responses would demand secondary hubs become an operational nexus for CCG vessels, and RCAF fixed and rotary wing aircraft transferring stores in and casualties out of an incident site under time sensitive conditions.[234]

Northern disaster response operations will be challenging, but probability and risk can readily inform planning and investment. A 2021 Defence Research and Development Canada (DRDC) study of the subject identified the central NWP near Resolute Bay as the area of greatest risk due to its isolation from suitable infrastructure (Figure 3.7). This absence of infrastructure had the additional impact of inverting traditional SAR casualty triage practices, necessitating the removal of healthy casualties first.[235] In sum, the

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[233] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..
[234] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..
[235] Hunter *et al.*, 43. In the model, many of the wounded did not survive the extensive travel time to southern hospitals, while healthy individuals left behind died of exposure while waiting for transports to return

DRDC study highlights the requirement for comprehensive norther disaster response planning, enabled by well-situated sustainment infrastructure. Further, southern policies and practices in more permissive environmental conditions must be tailored to unique northern conditions.

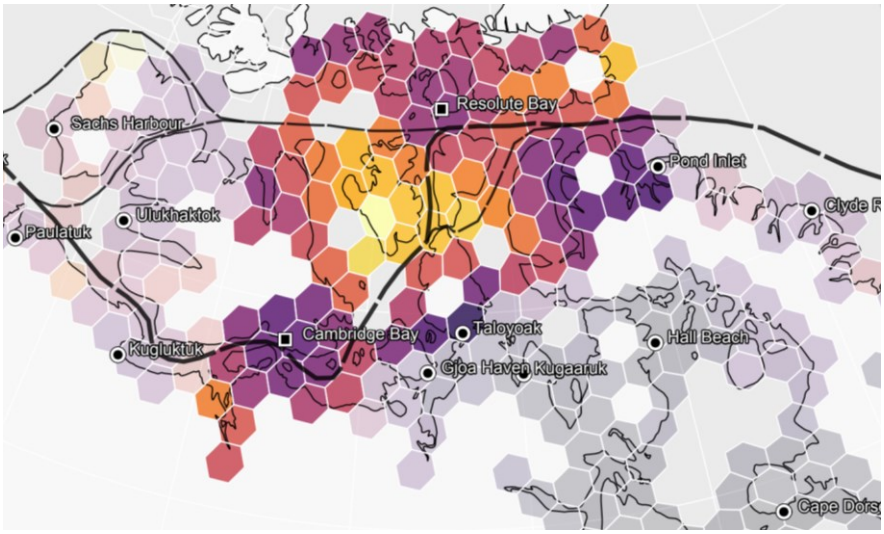

Figure 3.7: Region of Greatest Human and Environmental Response Risk

Source: Hunter *et al.*,34

Key decisions must be made as to how, where and what stores and equipment Canada stages in the north to respond to emergent threats being driven by climate change.[236] Such a plan must be developed and inform NOSH siting and construction requirements if the system is to meet necessity. While liaison and planning within the CAF has successfully identified the efficiencies that could be achieved by positioning rotary-wing hangars, spare parts and tooling within secondary hubs, there remains a lack of a comprehensive environmental and human threat response planning within the region.[237]

[236] House of Commons Standing Committee on Foreign Affairs and International Development, 85.
[237] Poitras. 416-417.

Communications Networks

Today, 97% of the world's communication, coordination and economic growth travels through a growing network of marine fibre-optic cables (Figure 3.8).[238] Unfortunately, remote northern communities still lack this capacity are constrained to low bandwidth, technologically constrained Arctic satellite networks.[239] However, commercial companies are now turning their attention to the Arctic to expediently connect Asia to Europe, offering northern communities and GC initiatives significant opportunities.

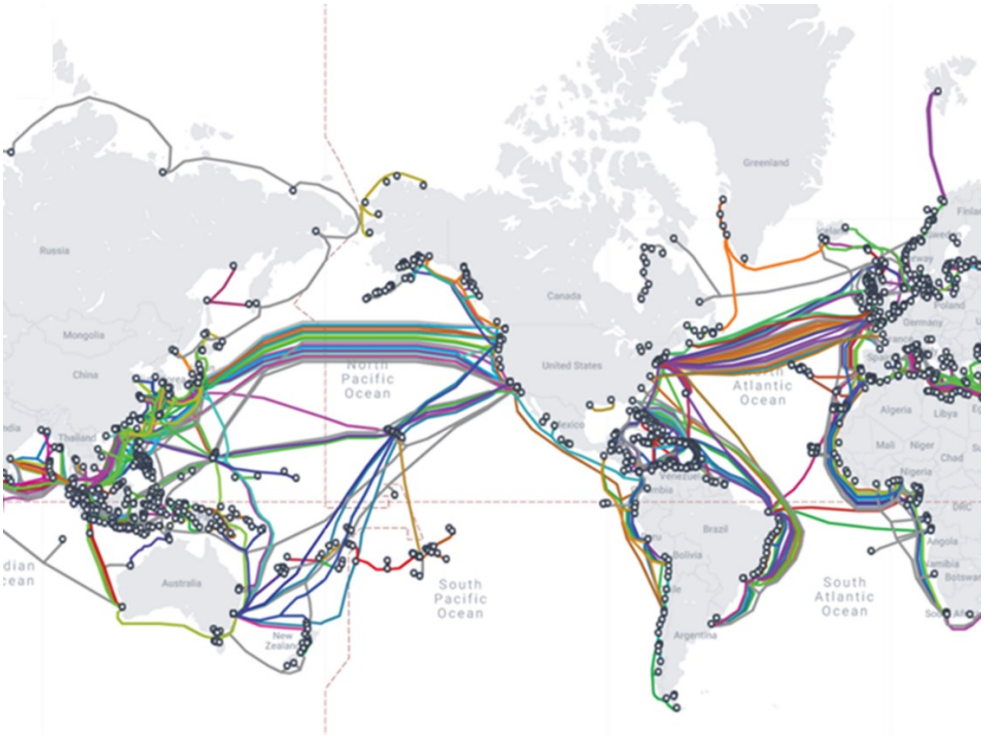

Figure 3.8: Global Marine Fiber-Optic Cable Network

Source: TeleGeography, "Submarine Cable Map," last modified 8 February 2022, https://www.submarinecablemap.com/.

[238] Bert Chapman, *Undersea Cables: The Ultimate Geopolitical Chokepoint* (Indiana, U.S.: Purdue University, 13 December 2021), 3.
[239] Sloan, 205.

Communication with northern communities, research stations and security facilities is a crucial thread that runs throughout ANPF. Interestingly, while some Arctic nations are actively investing in this emerging opportunity, the GC's respective initiative, headed by Canadian Radio-television and Telecommunications Commission, remains undeveloped with no finite implementation plan or funding.[240] This cedes the initiative to the private sector, necessitating GC and community planning to wait for and be responsive to industry. As such, NOSH siting and continental defence writ-large must be informed by private sector initiatives currently under development, like Quintillion's phased expansion of its Arctic cable network (Figure 3.9).[241]

Figure 3.9: Example of Proposed Arctic Submerged Cable through NWP

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[240] Gleb Stolyarov, *Russia starts operation to lay undersea fiber-optic cable through Arctic*, Reuters Online, 6 August 2021. The Polar Express is forecast to be complete in 2026; House of Commons Standing Committee on Foreign Affairs and International Development, 107; TeleGeography. Due to open in 2022, Canada's only northern fibre cable, the Eastern Arctic Undersea Fiber-Optic Network in Northern Quebec, is funded and executed by the Katavik government on behalf of its communities.

[241] Dr. Thomas Walker of Lockheed Martin stated "that the primary concern of NORAD modernization is the technology readiness levels of industry." The Conference of Defence Associations Institute.

Source: Winston Qui, "Quintillion Activates Arctic Subsea Cable," *Submarine Cable Networks*, 13 December 2017.

Setting aside the legal challenges and Canadian-US tensions that a private industry project through the NWP would create, Arctic marine cables are necessary to achieve ANPF. The socio-economic and strategic advantages offered by these connections are crucial to northern security and development. Thus, the planning and funding of NOSH secondary and tertiary hubs along the NWP must permit connection to this system. However, increased connectivity also demands increased security. The global submerged cable network has been of growing concern in recent years, as the capacity and intent to commit acts of state-led espionage and sabotage have grown.[242] While Canada is poised to benefit from these projects at a regional and national level, their presence increases international pressure on Canada to position operational resources to monitor and protect communications integrity and security. Thus, in addition to benefiting from fibre-optic connectivity, NOSH sites must also protect this new addition to the global network if ANPF's international objectives are to be achieved.

Section Summary

This section has highlighted the four most critical considerations that must inform NOSH facilities' design, planning, and construction. They represent both challenges and opportunities to NOSH planning and overall ANPF achievement, and form the core elements that will dictate operational capability projection throughout the north. While this paper advances the discussion with NOSH costing, timeline and inter-departmental

[242] Lane Burdette, "Leveraging Submarine Cables for Political Gain: U.S. Responses to Chinese Strategy," *Journal of International and Public Affairs Online* (Princeton University, n.d.).

relations in Chapter Four, the criteria listed above are the foundation on which northern development must be achieved. Their criticality will be revisited in Chapter Five.

Conclusion

This chapter has demonstrated that Canada's current efforts to implement ANPF are falling short and that while ANPF highlights the need for change, it does little to inspire or guide it. The routing of authorities and consultation through CIRNAC, which is under-resourced to perform the task of comprehensive northern development on behalf of the GC, has further complicated the already difficult task of developing the north. This has driven communities, Territorial governments and federal departments to undertake unstructured and uncoordinated individual efforts towards improvement. While ANPF is a sound and comprehensive policy, it lacks the vision, practicalities and governance structure to advance its aims. This chapter has demonstrated that infrastructure is the common thread to achieving ANPFs objectives.

This lack of infrastructure has traditionally limited the frequency, dispersion, and intensity of GC northern operations. The NOSH initiative seeks to address this through a multi-purpose infrastructure system that connects Canada's northern reaches with southern supply chains. It proposes that this be achieved through a graduated system of hubs that leverage existing community infrastructure to advance ANPF objectives. However, in developing this plan, four planning criteria will be vital, with Indigenous support and consultation being chief among them.

With the NOSH initiative proposed and crucial siting considerations explored, the next chapter will explore the importance of whole-of-government cooperation, funding and development timelines. The next chapter reinforces the argument for restructuring the

departmental authorities and decision-making frameworks used to govern northern development, and explores the modular nature of NOSH implementation.

CHAPTER 4: ADVANCING ANPF FROM POLICY TO PROJECT

Introduction

Climate change, resource competition and predatory adversaries are fundamentally challenging Canada's ability to provide for its northern citizens' health, prosperity and security.[243] However, these rapidly escalating threats have not resulted in a commensurate increase in government financial priority or planning effort. Instead, the GC appears to have fallen into the predictable trap of past Canadian governments and become reluctant to invest the time and capital required to advance complex solutions to challenging northern issues.[244] Kikkert and Lackenbauer rightly argue that the 2019 ANPF was a hastily released "wave of words" that sacrificed budget, timeline and governance structure in an effort to curry voter support.[245] In the intervening three years, nothing has changed. While the ANPF can still harmonize whole-of-government efforts, it continues to lack these three essential elements that differentiate a policy from a project.[246]

This chapter explores how the NOSH addresses these three deficiencies and demonstrates its readiness to generate quick success for the GC. The first section defines the estimated NOSH budget and how sequential hub construction can cost-effectively focus northern operational effects. The second section describes the timeline for NOSH implementation using existing GC project approval processes. The final section proposes

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[243] When testifying to the committee Dr. Charron stated that Canada is a global outlier in that refers to threats to sovereignty rather than defence threats, capability gaps or surveillance challenges. House of Commons Standing Committee on Foreign Affairs and International Development, 41-42.
[244] As academic Adam Lajeunesse notes, "The greatest folly of Canadian Arctic policy has always been the tendency to avoid the political and financial costs inherent in having a clear policy." Adam Lajeunesse, *Lock, Stock, and Icebergs? Defining Canadian Sovereignty from Mackenzie King to Stephen Harper*, (Calgary: Centre for Military and Strategic Studies, 2008), 12.
[245] Kikkert and Lackenbauer, 1.
[246] House of Commons Standing Committee on Foreign Affairs and International Development, 116.

an improved ANPF governance structure to better distribute and coordinate tasks across the GC. Throughout, the chapter demonstrates that, with some minor changes, the GC can be well-positioned to implement the NOSH initiative. However, if ANPF continues to struggle with the three basic planning elements of time, money and accountability, there is a growing chance that ANPF will fail.

NOSH Budgetary Requirements

While the GC has provided the north with a plentiful supply of policies and promises, it stands accused of not being nearly so forthcoming with money.[247] To wit, of the $180 billion earmarked for national infrastructure over the next decade, only 1% is identified for northern Territories.[248] This is not because the GC is callously indifferent to the state of northern infrastructure, but instead reflects the reality that project planning must be approached differently in the north. Southern Provinces' large staff and abundant resources permit the GC to provide top-down funding and then step aside. The same approach is not valid in the north, where limited staff, extended supply lines, harsh environmental conditions, and the necessity of Indigenous consultation drastically increase project complexity and the potential cost of any error or omission.[249]

The GC isolates northern investment from national spending policies for more rigorous analysis and review to mitigate these risks. Consider DND's Strong Secure

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[247] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*

[248] Infrastructure Canada, 4; Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*; House of Commons Standing Committee on Foreign Affairs and International Development, 105, 108-109. This figure includes the $71.7 million in northern funding through the National Trade Corridors.

[249] Ernie Regehr and Michelle Jackett, *Circumpolar Military Facilities of the Arctic Five* (The Simons Foundation, September 2017), 7. First estimated to cost $100 million in 2007, by December 2013 the predicted cost for DND's Nanasivik Naval Facility in Iqaluit jumped to $258 million; House of Commons Standing Committee on Foreign Affairs and International Development, 105. Note that the GC has tried to pass this risk to private industry by offering to cost-share up to 75% of infrastructure development costs with private industry partners, but with limited success. This indicates the level of complexity and risk involved.

Engaged policy, which sees the investment of $62 billion over two decades in national defence but conspicuously omitted NORAD and Arctic security.[250] This is not an oversight; it is the deliberate retention of the funds within the GC to ensure northern investment meets the rigorous standards required to create lasting strategic effects. Unfortunately, most proposals do not meet these high standards, and this financial risk aversion is leaving northern infrastructure degraded for want of investment. While ANPF hints at greater risk tolerance for northern investment, no tangible evidence of this visible. These continued promises of larger pots of unattainable money are little consolation to northern peoples.[251] However, ANPF creates an opportunity to reinvigorate discussion on what merits tolerable investment risk, and DND's NOSH initiative seeks to rise to that challenge.

With the most extensive departmental infrastructure portfolio, DND has demonstrated expertise in the planning and construction of facilities throughout Canada.[252] Leveraging this internal expertise, DND's NOSH construction cost is estimated at $4.2 billion (Table 4.1).[253] Northern cost comparisons do not exist, so this value was calculated by multiplying the known cost of southern infrastructure projects southern by community-specific cost multipliers historically experienced by DND during

[250] Department of National Defence, *Strong Secure Engaged: . . .*, 43-45; Nancy Teeple and Ryan Dean, "Preface," in *Shielding North America: Canada's Role in NORAD Modernization*, edited by Nancy Teeple and Ryan Dean (Peterborough, Ontario: North American and Arctic Defence and Security Network, 2021), vii; Government of Canada, 134. Note that while the 2022 Federal Budget did specify an additional $252 million for NORAD over the next five years, this is the GC's reaction to Russia's invasion of Ukraine, and thus should not be misinterpreted as a fundamental change to Canada's centralized project or expenditure management policies.
[251] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*.
[252] Department of National Defence, *Strong Secure Engaged: . . .*, 76.
[253] Canadian Joint Operations Command, "Northern Operational Support Hub (NOSH) - Strategic Concept," presented to the Assistant Deputy Minister's Arctic Working Group on 24 June 2021.

northern operations.[254] When totaled, the construction cost alone amounts to $2.4 billion. However, this does not reflect the additional costs incurred through scientific studies, consultation, and specialized project management. Fortunately, a 2021 RCAF strategic study exploring the feasibility of constructing rotary wing SAR hangars along the NWP found that a 76% contingency must be added to baseline construction costs.[255] This contingency brings the total NOSH cost to $4.2 billion.

	Loc	Infrastructure	Community Cost Multiplier	Cost ($M)
Primary Hubs	Iqaluit	C-17 Hangar	1.5x	$270
		Garage / Maintenance	1.5x	$13
		Airfield Warehouse	1.5x	$13
		New Fuel Farm	1.5x	$31
		Material Handling Equipment	1.5x	$4
		RCN Warehouse / Boatshed	1.5x	$22
	Hay River	C-17 Hangar	1.2x	$180
		Garage / Maintenance	1.2x	$8
		100-pers Barracks	1.2x	$30
		Warehouse (Airfield)	1.2x	$8
		Small Warehouse (rail)	1.2x	$6
		Augment Fuel Farm	1.2x	$10
		Material Handling Equipment	1.2x	$2
Secondary Hubs	Resolute Bay	C-130 Hangar	2.5x	$200
		Augment Fuel Farm	2.5x	$20
		Material Handling Equipment	2.5x	$2
		Boat Shed	2.5x	$13
	Sanirajak	C-130 Hangar	2.5x	$200
		Garage	2.5x	$8
		Small Warehouse	2.5x	$13
		Fuel Farm	2.5x	$43
		Boatshed	2.5x	$13
	Sachs Harbour	C-130 Hangar	2.5x	$200
		Garage	2.5x	$8
		Small Warehouse	2.5x	$13
		New Fuel Farm	2.5x	$43
		Boatshed	2.5x	$13
	Nanni sivik	C-130 Hangar	2.5x	$200
		1x Bay Garage	2.5x	$8

[254] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . .. For example, parts and labour in Iqaluit have been found to be 1.5x more expensive than their southern equivalent by DND's Real Property Operations officers who manage DND's northern infrastructure portfolio.
[255] LCol Pier-Augustin Chene and Stephanie Lajoie, telephone and email correspondence with author, 15 March to 4 April 2021.

		Small Warehouse	2.5x	$13
		Fuel Farm	2.5x	$43
		Boatshed	2.5x	$13
	Kugluktuk	C-130 Hangar	2.5x	$200
		Garage	2.5x	$8
		Small Warehouse	2.5x	$13
		Fuel Farm	2.5x	$43
		Boatshed	2.5x	$13
	Cambridge Bay	C-130 Hangar	2.5x	$200
		Garage	2.5x	$8
		Small Warehouse	2.5x	$13
		Fuel Farm	2.5x	$43
		Boatshed	2.5x	$13
	Rankin Inlet	C-130 Hangar	2.5x	$160
		Garage	2.5x	$6
		Small Warehouse	2.5x	$10
	15x Tertiary Sites		2.5x	$15
ESTIMATED CONSTRUCTION COST				**$2,396**
76% project cost for contingencies, project fees, consultation, etc				
TOTAL ESTIMATED PROJECT COST				**$4,217**

Table 4.1: NOSH Class D Cost Estimate

Source: Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . ..

$4.2 billion is a sizable investment, but it must be viewed in the context of the GC's commitment to invest $180 billion in southern Canada over the next decade. Presumably, the GC reserved funds from this investment strategy specifically for the north.[256] Therefore, there should be a commensurate sum of money set aside for northern initiatives that demonstrate potential and capably mitigate risks. The NOSH initiative, developed using DND's project management and northern infrastructure experience, represents a sizeable yet worthwhile investment to meet multiple GC objectives efficiently.[257]

[256] Simon. The author's presumption counters Simon's postulation that GC funding is potentially calculated solely on a per capita basis, which disables small northern communities.

[257] Note that DND is dependent on the work of the contract service provider, the contract manager and industry to efficiently expend the allocated funds. It is expected that Defence Construction Canada and industry bidders on the NOSH contract would have the requisite technical skill and contractual oversight to complete the project in accordance with their bids.

The counter-argument to NOSH investment is that the GC's current northern operations do not justify the cost of implementation. The issue at hand is, in theory, relatively simple; the duration, frequency and intensity of northern operations in specific areas of the north must warrant infrastructure investment for NOSH to be viable. At present, the sustainment of DND's limited range of annual northern sovereignty activities costs only approximately $15 million.[258] While this does not include the cost of SAR, NORAD, or OGD northern operations, it is clear that these costs do not justify NOSH expenditure. However, this is misrepresentative of the problem at hand as many GC northern operations limit their frequency, duration and intensity due to the lack of infrastructure and the prohibitive cost of sustainment.[259] Therefore, the cost of GC's current operations cannot be the only metric to determine if further investment is appropriate because the lack of infrastructure fundamentally inhibits the present generation of necessary effects. Thus, the NOSH business case must be considered from first principles and desired operational outputs, vice the status quo.

NOSH implementation should not be undertaken all at once. Instead, given the system's modularity and focus on operational effects, hub locations should be selected for implementation as the operational and situational needs demand.[260] Analysis of

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[258] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . .. This figure includes the costs for N-Series Operations, as well as supplying the Canadian Army Arctic Warfare Centre and CR routine operations.

[259] *Ibid*; Department of National Defence, "Operation Nanook," last modified 18 March 2022, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-nanook.html; Department of National Defence, "Operation Limpid," last modified 18 October 2021, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-limpid.html. Operation Nanook, DND's premier Arctic exercise routinely runs for only 2 to 3 weeks annually. Aircraft supporting Op LIMPID are similarly deployed only for limited windows due to the operational costs of supporting their activities.

[260] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . .. For example, if illegal fishing or submarine ingress into Canada's western EEZ is assessed as the most pressing concern, the westernmost secondary hubs should be undertaken first, vice trying to plan and develop all nine primary and secondary hubs concurrently.

whole-of-government effects, community socio-economic needs and the urgency of threat development must drive hubs construction priorities. This sequenced development serves three purposes. First, it directs financial and planning efforts and operational effects against the most pressing threats. Second, it applies NOSH costs over a longer timeline, and third, it allows lessons learned and best practices from early hub construction to be applied in subsequent planning cycles. This concept of a gradual and prioritized implementation of hubs is expanded upon in the next section.

This section has demonstrated that the NOSH initiative represents an ambitious, expensive, and entirely necessary solution to ANPF. It has been informed by a substantial degree of planning and assessment internal to DND and has the potential to integrate multiple lines of GC effort in a single project. As with any project, the timing and sequencing of the parts build to the success of the whole. As such, in addition to funding, the GC's timeline for project approval must also be integrated into NOSH sequencing if emergent threats are to be proactively mitigated.

NOSH Implementation Timeline

The GC manages the planning and execution of projects over $1 million through Public Works and Government Services Canada's (PWGSC) National Project Management System (NPMS) system (Figure 4.1).[261] This system sees project proposals developed and iteratively refined over the three phases of Inception, Identification and Delivery, each requiring formal deliverables and resulting in progressively more permissive approvals and funding.[262] This process ensures that the impacts and

[261] Public Works and Government Services Canada, *NPMS Procedure on Project Approval and Expenditure Authority for Real Property* (Ottawa: Government of Canada, 24 April 2014), 3.
[262] Public Services and Procurement Canada, "National Procurement Management System," last modified 6 November 2019, https://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html.

requirements of complex proposals are deliberately considered and prioritized for execution based on whole-of-government risks and requirements.[263] While slow, this deliberate process allows central GC decision-making bodies to vet and phase infrastructure construction over protracted timelines, an essential aspect of project management.[264]

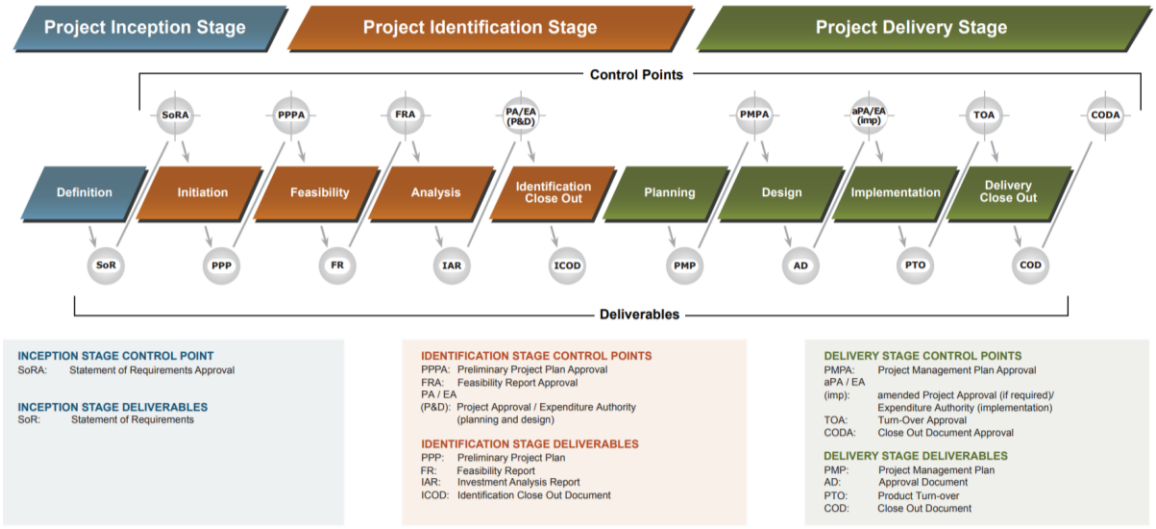

Figure 4.1: GC National Project Management System

Source: Public Services and Procurement Canada.

At present, DND has submitted the NOSH Statement of Requirements (SoR) to PWGSC and is awaiting approval to move forward into the Identification Stage. Part of this submission was the Indicative Cost Estimate presented above and the proposed project development timeline presented below (Table 4.2).[265] Given the current rate of Arctic environment degradation and the faltering state of the rules-based global order, this timeline should be considered the minimum permissible for NOSH to achieve ANPF

[263] Public Services and Procurement Canada.
[264] Note that while this section will focus on the GC planning and approval milestones required by NPMS, this must not be misconstrued as diminishing the centrality of Indigenous community consultation and consent for NOSH development.
[265] Public Works and Government Services Canada, 5.

objectives. NOSH implementation must be conducted proactively and exist in advance of the developing threats. For example, the GC must be capable of interdicting illegal fishing or environmental contamination before the threat is routinely present. However, the bureaucratic rigours of the PWGSC's NPMS mean that deliberation and approvals can take years to materialize, years that Canada's Arctic does not have.

Stage	Event / Control Point	Target Year
Project Inception	SOR Submitted (Complete)	Aug 2021
Project Identification	Feasibility Report Approval	2024/25
Project Identification	Project Approval / Expenditure Authority	2025/26
Project Delivery	Project Management Plan Approval	2027/28
Project Delivery	Activation of initial Hubs to GC Departments	2030/31
Project Delivery	Activation of subsequent Hubs to GC Departments	2031 - 2044
Project Delivery	Final Hub activation	2044/45
Project Delivery	Close-out documentation to PWGSC	2046/47

Table 4.2: Proposed NOSH Project Milestones

Source: Canadian Joint Operations Command, "Northern Operational Support Hub (NOSH) - Strategic Concept, ...

While overall NOSH initiative approval must adhere to NPMS, following Project and Expenditure Approval in 2025/26, each hub should be developed as a discrete entity of the broader system. As identified in the previous section, determining which hubs will form the Initial Activation in 2030/31 is crucial and must be informed by whole-of-government and community risk analysis. One might assume that the construction priority should begin with the large southern-most primary hubs. However, this is not the

case.[266] Rather, construction should begin with select secondary hubs that enable effects against the most significant and pressing regional threats. As some secondary hub communities, like Cambridge Bay and Resolute Bay, already possess some GC infrastructure, priority for construction can be further refined to first develop hubs where no GC capacity currently exists. For example, the western Arctic possesses minimal land-air-sea integration infrastructure. Thus the secondary hubs at Kugluktuk and Sachs Harbour, or even further east at Sanirajak, would create the most significant new effects. Due to their low costs, tertiary hubs should be constructed as budget and resources allow, although quick implementation would provide an early success for ANPF and provide a test-bed for NOSH project management processes. Overall, the NOSH timeline advises that the highest priority secondary hubs be operational no later than 2031, with the completion of subsequent hubs achieved over the subsequent 15 years as funding and operational requirements permit.[267]

This section has enhanced the NOSH description and budgetary requirements explored earlier in this paper by framing their development along the PWGSC NPMS timeline. It has exposed that while the NOSH must be approved as a single initiative, it must be funded and executed as a series of discrete projects. Worryingly, the overall success of ANPF is at risk due to the protracted timelines of NPMS bureaucracy, and effort must be applied to ensure that NOSH is proactively developed and delivered. To that end, it is proposed that isolated secondary hubs receive the highest priority for

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[266] Canadian Joint Operations Command, "Northern Operational Support Hub Concept," . . .. While vital to sustaining prolonged, robust GC Arctic operations in the future, at present the primary hubs are not the most critical effect required. The full extent of GC northern operations is not yet known, and the primary hubs should be developed with more fidelity due to their cost. Further, the construction of secondary hubs will not be made more cost effective with the early addition of primary hubs.

[267] Canadian Joint Operations Command, "Northern Operational Support Hub (NOSH) - Strategic Concept, ...

construction to deliver necessary GC effects to remote areas. However, the next section explores why budget and timeline alone are not enough to ensure ANPF success and that an improved governance structure is required.

Enhanced Governance Structure

As described in Chapter 3, the GC has identified CIRNAC as the lead department to guide the whole-of-government efforts executing ANPF. While a comparatively small department within the federal public service, CIRNAC benefits from a network of relationships across Canada's Arctic, providing invaluable awareness and understanding of the issues and challenges facing northern peoples. However, CIRNAC does not possess the staff and experience to concurrently plan, direct, and implement the diverse requirements demanded by the eight ANPF objectives. This deficiency is readily visible in CIRNAC's 2021 Horizontal Initiative plan, which is meant to govern whole-of-government efforts in the north for the next decade.[268]

Laudably, the Horizontal Initiative does rectify some of the errors made in the 2019 release of ANPF. While not specifically governance, it does direct that OGDs pursuing their mandates in the north report their efforts and effects to CIRNAC for monitoring.[269] It also identifies the need for working groups to collaborate along four "themes" to guide work and put mutually-supporting departments into closer

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[268] Crown-Indigenous Relations and Northern Affairs Canada, "Horizontal Initiative – Arctic and Northern Policy Framework" (Ottawa: Government of Canada), last modified 16 June 2021, https://www.rcaanc-cirnac.gc.ca/eng/1623350618792/1623350655414; House of Commons Standing Committee on Foreign Affairs and International Development, 116.

[269] Crown-Indigenous Relations and Northern Affairs Canada, "Horizontal Initiative . . .. OGDs "will continue their participation in establishing the governance structure, and the financial parameters for the horizontal initiative, provide a complete list to CIRNAC of their activities that are connected to the horizontal initiative; and provide information on relevant departmental activities as required by the Oversight Committee."

coordination.[270] Finally, it also identifies nascent budget requirements, desired end states and the measures of effectiveness to be used to guide effective execution. To that end, CIRCAC, TC and Global Affairs Canada (GAC) are in close financial coordination to advance *some* of the regional and national objectives of ANPF.[271] While nascent, the Horizontal Initiative demonstrates that CIRNAC is working diligently to leverage its resources, staff capacities and existing departmental connections to advance ANPF.

The Horizontal Initiative plan falls dangerously short, however, in that the four "themes" appear to have been developed in isolation and focus exclusively on the cultural and social ANPF objectives to the exclusion of others. The environmental, security and economic objectives of ANPF are not mentioned. Instead, they are left to OGDs "to implement their respective activities connected to the Horizontal Initiative," overseen by CIRNAC's Oversight Committee.[272] This approach does not provide the necessary governance and oversight to coordinate a pan-GC effort towards a single common goal, and does not overcome conflicting departmental cultures, mandates and practices.[273] Thus, the Horizontal Initiative has failed to overcome the same obstacle as the original 2019 ANPF; it is looking for input and instruction when it should be providing clear direction and guidance. Even if this direction remains an imperfect work in progress as the execution of ANPF progresses, it provides the necessary structure to coordinate a whole-of-government effort, something presently lacking. While CIRNAC welcomes

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[270] Crown-Indigenous Relations and Northern Affairs Canada, "Horizontal Initiative . . ... The four themes are; (1) healthy and resilient northern peoples, (2) use of Indigenous knowledge and understanding to guide decision-making, (3) improved infrastructure, and (4) improved participation in the Arctic Council.
[271] *Ibid.*
[272] *Ibid*.
[273] Neil Chuka and Heather Hrychuk. "CAF Operations: A Comprehensive Approach to Enable Future Operations," in *Canadian Defence Policy in Theory and Practice* (Cham: Springer International Publishing, 2019), 318.

OGD input into improving the governance structure and financial parameters, they have reached the limits of their existing resources and require augmentation if ANPF is to be successful.

The pressing issue of climate change and its associated challenges do not afford the GC time to develop an ANPF implementation model gradually. The planning timelines, project funding and human threats demand substantive progress me made now to set the conditions for centrally coordinated comprehensive effects in the near future. To that end, a clear hierarchical governance structure must be implemented by CIRNAC (Figure 4.2).[274] Within this proposed framework, CIRNAC retains its primacy as the best-positioned department to lead, direct and coordinate the disparate northern efforts of the OGDs. However, the OGDs must provide permanent specialist augmentation to the CIRNAC Oversight Committee to assist in this planning and integration. Further, the GC owes CIRNAC commensurate funding, personnel and financial authorities to enable the timely execution of ANPF.

[274] This could include the Assembly of First Nations, the Congress of Aboriginal Peoples, the Inuit Tapiriit Kanatami, the Métis National Council and the Native Women's Association of Canada.

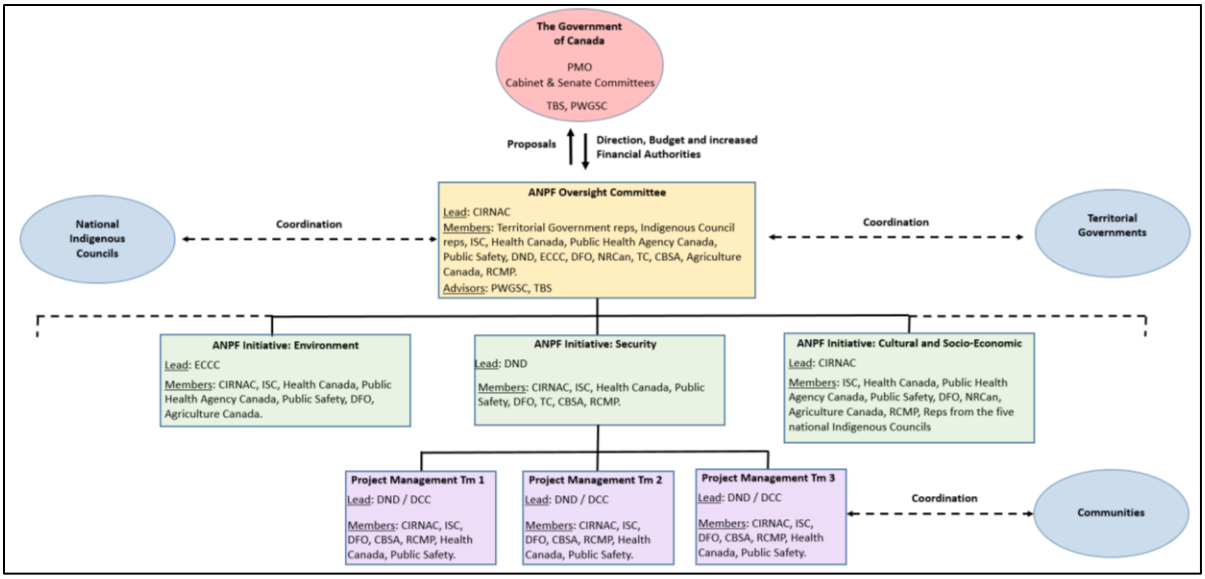

Figure 4.2: Effects-oriented restructuring of ANPF

Source: Author's design.

In addition to permanent augmentation and specialist advisors injected into the Oversight Committee, the actual execution of ANPF must be more centrally led. To that end, specific lead departments should be assigned ANPF lines of effort or objectives for execution.[275] For example, instead of ECCC pursuing its northern monitoring and research work in isolation and only reporting episodically to CIRNAC, ECCC's efforts should be executed in close coordination with, and responsive to, wider whole-of-government ANPF execution. Importantly, lead ANPF Initiative departments must consist of cross-functional OGD planning teams to efficiently develop comprehensive plans.[276] This cross-functional capacity, in turn, enables Project Management Teams working with specific local communities to tailor and adapt plans to community needs. This enhanced and hierarchical system would permit the focus of cross-functional efforts,

[275] Identified as green boxes as green boxes within Figure 4.2. Note that while only three are shown, as many as CIRNAC sees fit, up to eight (one for each of the ANPF objectives) could in theory be created.
[276] Represented in the purple boxes in Figure 4.2.

under the direction of specialized departments, to best develop their individual components of ANPF while concurrently working under CIRNAC's overarching leadership.

While predominantly focused on the projection of security effects throughout the north, the NOSH initiative can enable and enhance the performance of all ANPF objectives. Infrastructure, cost and HR-intensive, the NOSH represents the most ambitious GC project undertaken in the north since the DEW Line.[277] With a significant existing infrastructure portfolio and the expertise to manage and operate such sites, DND and its crown-corporation partner Defence Construction Canada (DCC) are well-positioned to lead the NOSH initiative on behalf of CIRNAC.[278] Informed by a diverse whole-of-government team, DND could pilot the NOSH through the NPMS and manage its implementation. Finally, even with augmentation, CIRNAC cannot perform all of the tasks demanded by ANPF; necessary authorities must be delegated from the GC and distributed within this proposed hierarchical governance structure.

This section has demonstrated that the OGD reporting and oversight outlined in the Horizontal Initiative does not provide the level of control and coordination necessary to achieve ANPF at the speed of relevance. Instead, CIRNAC requires a robust hierarchical governance structure that enables the complexity and dispersion of ANPF projects to be delegated to specialized departments, enabled by cross-functional planning teams. With significant experience planning and operating northern infrastructure, DND is well-positioned to conduct the execution of the NOSH under CIRNAC oversight. To achieve this, DND must harmonizes diverse OGD cultures and employs collaborative,

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[277] Lajeunesse, 4.
[278] Defence Construction Canada, "Welcome to DCC," n.d, https://www.dcc-cdc.gc.ca/about-dcc.

vice exclusively military, planning practices to harness OGD efforts towards the common goal.[279] However, the GC must fundamentally reconsider and, where necessary, revise existing departmental divisions and bureaucratic processes to meet the rapidly growing threats to Canada's northern peoples.

Conclusion

This chapter has demonstrated that if ANPF is to advance, it urgently needs a precise budgetary estimate, a realistic timeline, and a significantly improved governance structure. It has highlighted why infrastructure projects are managed differently between north and south and why the GC reserves funds for northern development. In this context, the $4.2 billion required to fully implement NOSH over the next 15 years has been demonstrated to be a reasonable and justified cost. This chapter then framed the NOSH approvals and implementation timeline using the PWGSC NPMS and highlighted the need for urgency. This timeline demonstrated that the first secondary hubs must be activated by 2030/31 to meet the pressing environmental and international threats laid out in Chapters 1 and 2. Finally, this chapter proposed improving CIRNAC's Horizontal Initiative plan with a new hierarchical ANPF governance structure to enable the expeditious multi-departmental implementation of varied and complicated projects. DND is well-positioned to advance NOSH on behalf of CIRNAC if enabled with a cross-departmental planning team within this new structure.

Over the previous four chapters, the environmental and international threats to Canada's northern ambitions have been presented, the NOSH proposal has been laid out, and the necessary budgetary, timeline and governance structures provided to demonstrate

[279] Chuka and Hrychuk, 318-319.

its viability. The next and final chapter will demonstrate why the situational unknowns and financial risks must not inhibit GC action in the north. It will also propose a framework public engagement strategy to garner support for the NOSH and highlight critical GC decisions still to be made.

CHAPTER 5: THE ROAD AHEAD AND FINAL SYNTHESIS

Introduction

Historically, Canada's narrative for northern development has focused predominantly on environmental stewardship.[280] However, growing international insecurity, climate change and economic uncertainty have invalidated several elements of this dated narrative, necessitating revision. This revised narrative must unequivocally prioritize national effort between the strategic goals of population health, economic prosperity, environmental stewardship, international stability and territorial security.[281] The GC's unwillingness to publish clear direction regarding the priority, funding and desired effects of the eight ANPF objectives indicates the GC's apprehension of voter reaction to this new reality. To overcome this, the GC must engage and educate the Canadian public about Canada's changing Arctic in a manner that maximizes public support.[282]

This chapter explores the challenges of garnering public support for Arctic development over two sections. The first discusses three unresolved strategic issues and their effects on the public narrative, while the second proposes a framework NOSH public consultation strategy to induce voter engagement and support. Following these two sections, this final chapter concludes with closing arguments for the NOSH proposal and its centrality to Canada's northern goals. At present, however, Canada's future ambitions remain mired in strategic indecision.

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[280] Lajeunesse and Huebert, 236.
[281] House of Commons Standing Committee on Foreign Affairs and International Development, 41, 117.
[282] Lajeunesse and Huebert, 236.

Outstanding Strategic Issues

ANPF details eight strategic objectives the GC must achieve to pursue a balanced northern development strategy. However, ANPF deliberately avoids exploring and resolving the inherent tension between these objectives. Far from being eight unique and isolated outcomes, the holistic success of ANPF relies on the synchronization and supportive interactions between all eight objectives (Figure 5.1). This section explores the three most pressing strategic issues threatening ANPF synchronization and the importance of unprejudiced GC decision-making.

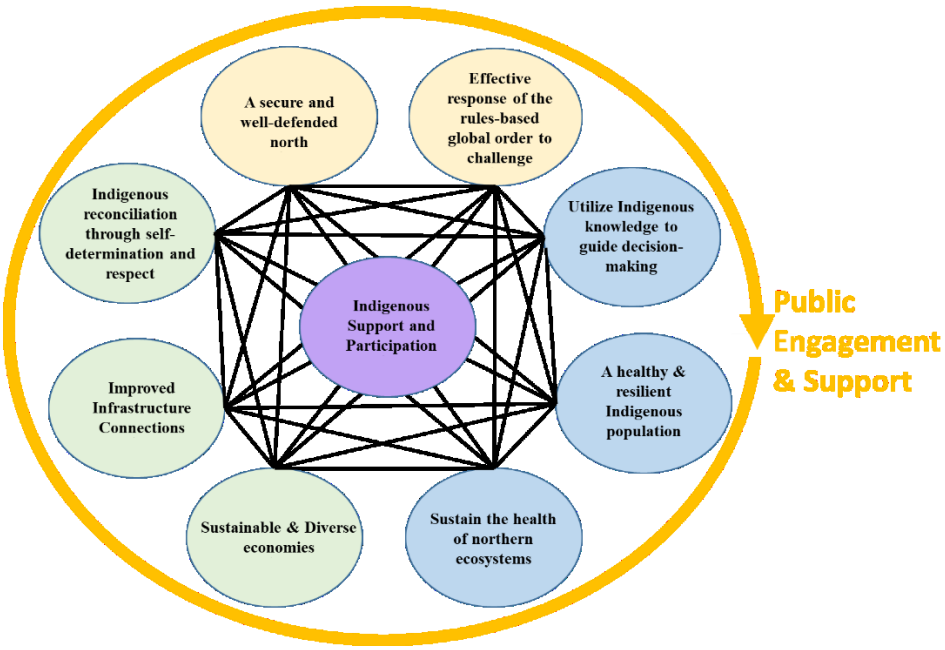

Figure 5.1: The Inter-Connection of ANPF Objectives

Source: Author's design from ANPF.

The Issue of Balancing Environmental and Economic Objectives

The GC is presently promoting a reckless imbalance between its environmental and economic northern objectives. To wit, over the next eight years, more than 30% of Canada's Arctic land and marine areas will be placed under environmental conservation

(Figures 5.2 and 5.3), and an existing ban on northern oil and gas development will likely be prolonged.[283] Worryingly, both strategies are being implemented without Indigenous consultation, inhibiting northern economic growth and job diversification.[284] While conservation effectively protects ecosystems from harm, it directly inhibits local economic growth.[285] In effect, GC-driven environmental over-protection prevents northern self-determination and panders to southern voter sensibilities over Indigenous needs.[286]

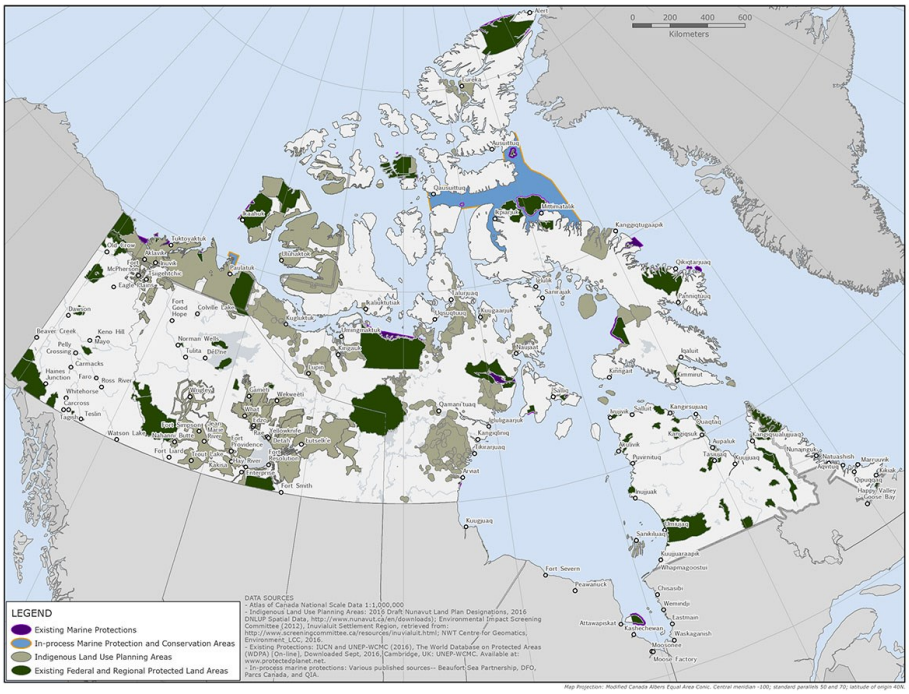

Figure 5.2: Planned Land and Marine Conservation Areas in the North

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[283] Environment and Climate Change Canada, *2021-22 Departmental Plan, . . .,* 4; Crown-Indigenous Relations and Northern Affairs Canada, "Order Prohibiting Certain Activities in Arctic Offshore Waters: SOR/2019-280," *Canada Gazette*, Part 2, volume 153, no. 17, (30 July 2019); Anna Soar, "The Arctic This Week Take Five: Week of November 22, 2021" (The Arctic Institute, 26 November 2021), Take 5.
[284] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*. Specifically, the report reads: "It recommends the establishment of a ministerial working group to review federal legislative impediments that exclude northerners from accessing federal programs or impose inappropriate regulations on people and communities."
[285] Environment and Climate Change Canada, *2021-22 Departmental Plan, . . .,* 1; Kikkert and Lackenbauer, 7; Protection of the Arctic Marine Environment Committee, 2.
[286] Wallace. "McLeod continued his criticisms … described southern Canadians' attitude as one that regarded the Territories as a "large park"."

Source: Simon, Appendix 2.

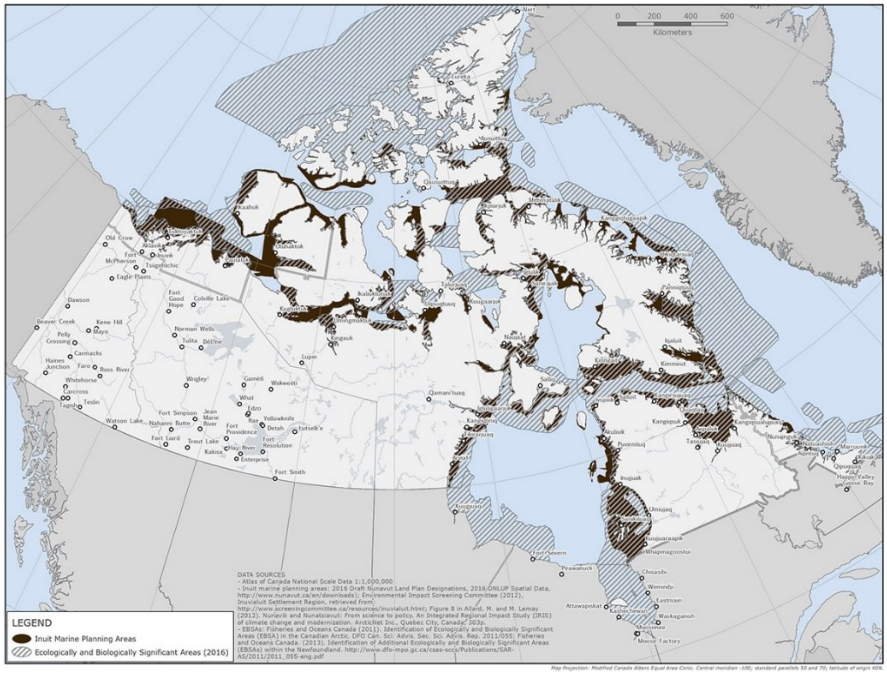

Figure 5.3: Existing and Proposed Marine Conservation Areas

Source: Simon, Appendix 3.

The GC's historical narrative of northern development premised on environmental preservation is becoming untenable as climate change attacks and degrades the regional ecosystem that the GC wishes to conserve, and endangers the safety of Inuit communities.[287] As a result, GC must strive to better integrate the protection of failing Arctic ecosystems and declining human health with the requirement to provide sustainable links to the south and create economic opportunities, while concurrently respecting Indigenous rights and desires. Thus, the GC must strive for a greater appreciation of the economic needs of northern communities and make decisions based on a holistic understanding of long-term national health.[288] Unfortunately, the failure by

[287] Simon.
[288] This is not to suggest that environmental protection of Canada's diverse northern ecosystems is less important than economic growth, only that its application in planning must be in balance with the other seven objectives if informed decisions are to be made.

the GC and CIRNAC to define this critical balance between ANPF objectives has stagnated and compartmentalized northern development projects.

While the Canadian public, and perhaps even the GC itself, may not be prepared for the financial and intellectual cost of developing a balanced and sustainable northern vision, federal departments must understand the strategic approval criteria if they are to develop their operational plans accordingly.[289] Operational efficiencies exist between ANPF objectives, but their compartmentalization along departmental lines and ill-defined strategic criteria represent clear obstacles to practical implementation.[290] CIRNAC cannot achieve ANPF in isolation. The GC must inform departments what it considers acceptable financial risk, critical criteria for approval and strategic limitations if ANPF is to progress effectively.

The Issue of Undefined GC Decision-Making Criteria

As described in Chapter 4, unique northern conditions necessitate an atypical GC project approval process based on distinct risk acceptance criteria. However, three years after ANPF's release, federal departments continue to languish without a clear understanding of what the GC's budgetary and risk-acceptance approval criteria actually are. Instead, departments must inefficiently propose initiatives in the hopes that project proposals achieve unknown criteria, financial constraints and GC whims. This failure to provide departments with direction and a comprehensive understanding of the vision and parameters governing whole-of-government Arctic planning significantly impacts operational effectiveness. Worse, it compartmentalizes departmental efforts, dissuades

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[289] Teeple and Dean, "Introduction: . . ., xxi.

[290] As Lackenbauer notes, "The distinction between security threats like Russian aggression, soft security threats like access enforcement, and economic development initiatives must remain distinct, but at the same time be viewed comprehensively to find efficiencies." Lackenbauer, *Why Fear Russia* . . , 4.

collaborative planning and isolates specialist advice from GC decision-making. Overall, this results in departmental planning being unguided and insular, inhibiting innovation and denying whole-of-government synergies.

The Issue of Human Resource Investment

Indigenous support and community involvement are crucial to the success of ANPF. Further, the achievement of ANPF demands an increased federal public service presence in the north. Thus, to truly be successful in the north, the GC must create enduring strategic effects by training and developing Indigenous HR to meet emerging operational and economic demands. Sadly, the GC has struggled to make material progress towards its ambitions of enabling and reconciling with Indigenous northern peoples.[291]

Leveraging the NOSH concept, it becomes clear that a robust training and development program rooted in community support and leading towards public service employment must pre-empt infrastructure development and represents a crucial precondition for national success. However, beyond general statements of desired improvements, Canada currently has no discernable strategy for Indigenous HR development linked to ANPF initiatives. While CIRNAC champions multiple GC programs aimed at increased access to training and education in the north, without a long-term strategic plan guiding these efforts, human development remains de-linked and from future national outcomes, and therefore unfocused. Given its centrality to the success of

[291] Crown-Indigenous Relations and Northern Affairs Canada, *Canada's Arctic . . .*

ANPF, the GC must better define the human requirements of ANPF and develop a clear strategy to achieve them.

Section Summary

To achieve ANPF, the GC must strike a balance between the eight inter-related yet often competing ANPF objectives. By failing to define critical strategic decision-making criteria, HR requirements and balance between competing objectives, the GC is fundamentally eroding its own ability to succeed in the north. While the GC faces many strategic decisions and challenges in its implementation of ANPF, these three represent the most significant impediment to achieving whole-of-government consensus and unity of action towards strategic success. Notably, the resolution of these three strategic issues must stem from analyzing modern realities and threats. While the GC may worry that Canadians are not ready for this revised and potentially pessimistic northern development narrative, implementing a public engagement strategy to raise awareness of emergent northern issues is essential.

Proposed Public Engagement Strategy

Public engagement is a complex but necessary part of the democratic development of domestic policy. Broadly defined, a public engagement strategy (PES) is the formal dialogue between a government and its citizens. To be effective, a PES must conform to the six principles of timeliness, openness, transparency, inclusivity of affected demographics, responsiveness to the needs of both government and the public, and relevance to the policy in question. This collaborative policy development should include a variety of interest groups, such as academics, subject-matter experts, consumers, business leaders, Indigenous and minority groups, concerned citizens and non-

governmental organizations. Executed correctly, a PES both informs and solicits feedback from the public, thereby improving the quality and depth of the subject policy. A PES fosters a reciprocal exchange of information between parties, facilitates discourse and constructive debate outside of government, and collects and deliberately integrates feedback.[292] While the GC conducted an ANPF PES in 2018, a subsequent PES for the NOSH initiative is required.

The previous section explored the GC's apprehension about making exclusionary strategic decisions affecting the north. As such, the primary goal of the NOSH PES must be to gather the necessary information to address those concerns and deliberately advance project dialogue toward execution.[293] However, it is essential to note that a PES is not an opinion poll or call for new ideas, nor is it a community-level discussion on where to place new infrastructure.[294] Instead, it is a strategic-level *dialogue* between the GC and affected parties to develop a shared understanding of the problem parameters and potential courses of action (Figure 5.4).[295]

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[292] Health Canada, *Guidelines on Public Engagement 2019* (Ottawa: Government of Canada, November 2019), 1-4, 7.
[293] As Indigenous communities are central to this discussion, it is crucial that their opinions, desires and requirements be integrated into early planning and be represented in any solutions proposed.
[294] *Ibid*, 2, 32. "Public engagement is an activity involving a two-way discussion and exchange of information, while public opinion research is an environmental analysis activity where the objective is one-way data collection of opinions, attitudes, perceptions, judgments, feelings, ideas, reactions, or views."
[295] *Ibid*, 5. "The greater the potential impact on interested and affected participants, the higher the level of engagement recommended."

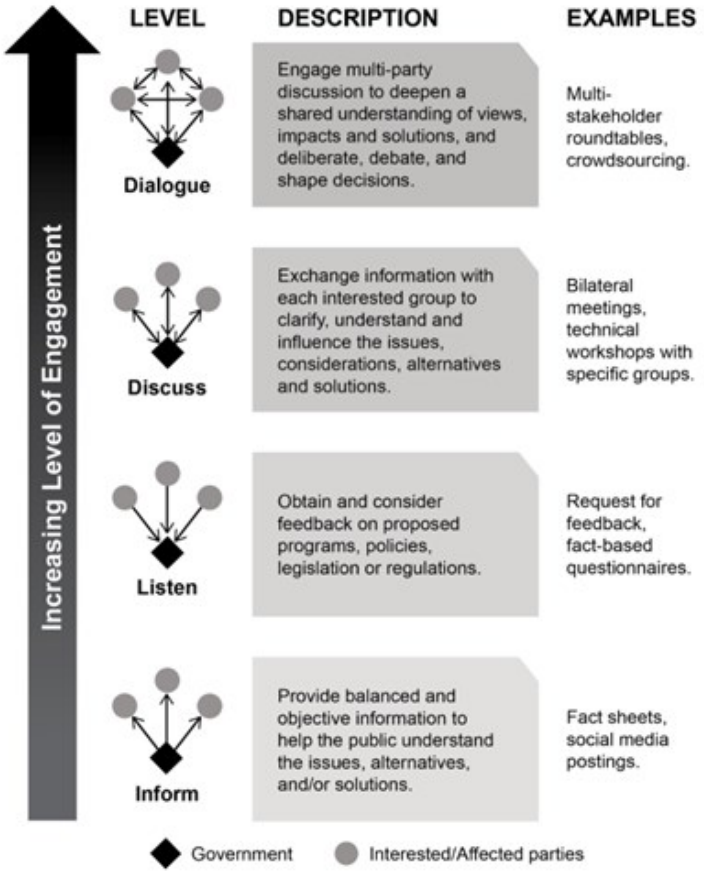

Figure 5.4: The Public Engagement Strategy Hierarchy

Source: Health Canada, *Guidelines on Public Engagement* . . ., 6.

The overarching goal of this initial NOSH PES must be to garner a general understanding of the socio-economic requirements the NOSH initiative should holistically address across the region. However, note that this PES is a good governance and policy practice, not a "Duty to Consult" activity under section 35 of the 1982 Constitution Act.[296] In this instance, the Privy Council Office recommends using community town halls, structured workshops and small-group reflective studies to guide

[296] *Ibid*, 3, 31; Isabelle Brideau, *The Duty to Consult with Indigenous Peoples* (Ottawa: Library of Parliament, 12 June 2019), 2-3, 5-6, 7-8. Note that following this proposed initial, regional NOSH PES to identify general concerns and requirement, specific hub communities would be engaged in formal Duty to Consult legal negotiations regarding hub siting, land use and formal consent.

multi-party dialogue and collate deduced results.[297] While each method has its benefits and challenges, a PES must use a combination of these tools to facilitate maximum engagement. However, the selection and employment of NOSH PES methodologies must reflect the challenging geographic distance and a lack of communications infrastructure in the north. These factors will severely limit the ability of communities and affected demographics to participate in the process.

The NOSH PES must adapt to northern conditions by employing a mix of digital and physical town hall discussions with northern communities, panel discussions with subject-matter experts and Indigenous leaders, and a broad educational campaign aimed at the nation's citizenry.[298] Framed within a budget, HR staffing design, target audience hierarchy and sequenced methodology, the NOSH PES would facilitate regional discussion over the space of one to two years. The result of this PES will be a large body of disorderly quantitative and qualitative data, which will be ill-suited for computer analysis.[299] Thus, following the physical engagement period, time must be set aside for the PES team to process the data they have received and modify the NOSH proposal. While the NOSH PES will be time-consuming, the resulting community relationships and collaborative problem-solving with Inuit leaders will prove instrumental during the subsequent "Duty to Consult" negotiations. This planned progression from initial regional PES to community-specific "Duty to Consult" engagements is crucial to NOSH

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[297] Health Canada, *Guidelines on Public Engagement* . . ., 28; Privy Council Office, "Design an Engagement Experience: Method Cards" (Ottawa: Government of Canada, 14 April 2020).
[298] Health Canada, *Guidelines on Public Engagement* . . ., 3. Prior to execution however, it is vital that this strategy be submitted to review by legal experts, CIRNAC and cultural advisors.
[299] *Ibid*, 11, 14, 23-25.

achievement and can readily be completed before the NPMS "Feasibility Report Approval" milestone in 2025.

Viewed holistically, the desired outcomes of this sequential approach to NOSH PES are threefold. First, to efficiently inform and address strategic issues and advance Canada's practical achievement of ANPF within the NPMS. Second, to demonstrate respect for Inuit traditions and provide communities with the means for socio-economic growth. Finally, to raise the awareness of the Canadian public to the plight of Canada's north and stimulate necessary national dialogue and transformation. The NOSH PES represents the next logical step in northern development and ANPF achievement but requires the support of the central GC in order to advance. Given the information presented in this paper, it is anticipated that the case for the NOSH stands for itself as a necessary and worthwhile investment in support of Canada's ambitions.

Final Arguments and Conclusion

Driven by climate change, the environmental situation in Canada's north is expected to deteriorate rapidly over the next twenty years. On average, the Arctic is warming three times faster than the rest of the globe as snow and multi-year ice cover retreat, enabling greater absorption of solar radiation. These rising temperatures will produce more precipitation, more dynamic shoulder seasons, changing and potentially poisoned water tables, and the steady migration of non-native species into the region. Additionally, global warming is expected to collapse traditional Indigenous sustainable food chains, increase coastal erosion, and create mass geological instability throughout the region. These changes represent an existential threat to the Inuit people and invalidate

Canada's historical narrative of northern development centred on ecological conservation.

These environmental changes exacerbate existing international tensions within the region and cause previously unseen challenges to arise, as demonstrated by the DIME concept. Diplomatically, middle-power Canada is highly reliant on the function of the rules-based global order for security. As such, Canada must do more to promote and enhance the function of the Arctic Council as the vital body for regional cooperation and stability. This tension is evident in the NWP, where Canada's territorial waters claim is not internationally recognized, creating strategic risk. Militarily, Russia has achieved regional superiority over western forces and is fielding a range of technologically advanced strategic weapons.[300] These advanced weapons negate the GC's historic strategy of defence via geographic isolation. Canada now must participate more readily in international alliances to counter this threat while concurrently developing sufficient national defence capabilities to "borrow help" from allies only in extreme circumstances. Economically, Canada's potential future gains from the Arctic are challenged by predatory "near-Arctic" China, increasing marine traffic and illegal fishing activities. To counter this threat, Canada must develop a national northern industries and position assets to police and control the use of its EEZ. Finally, in the information domain Canada's national narratives and public dialogues are dated and inconsistent, elevating the risk of targeted disinformation campaigns. If Canada is to harness national discourse and support, a revision of the national narrative must occur.

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[300] Marie Woolf, "Defence chief says guarding Far North priority, warns Russia is back in Arctic bases," *The Canadian Press*, 10 March 2022; Bryan Passifiume, "We're effectively a border state with Russia: Defending Canada's far-north called key to protecting sovereignty," *National Post*, 11 March 2022.

To comprehensively address these mounting challenges, the GC released its ANPF in 2019. A roadmap to achieving Canada's northern ambitions, the ANPF presents eight inter-related socio-economic and security objectives to be achieved within the regional, national and international spheres. While a necessary expression of GC intentions, the ANPF failed to provide internal direction to its subordinate departments to coordinate their planning efforts. The principal obstacle to departmental planning is that existing northern sustainment and communications infrastructure cannot support departmental growth in the north; thus, ANPF remains unachievable. Indeed, ANPF's expression as a policy, vice a project, means it lacks the budget, timeline, analytical criteria and vision statement to address this infrastructure deficiency. Compounding this error, the GC incorrectly assumed that the existing CIRNAC governance structure was capable of managing whole-of-government northern development. Without these details and within this flawed construct, the GC's ability to realize its ANPF ambitions have stalled. If ANPF is to be advanced, it demands a whole-of-government effort to reorient, reinvigorate and inform the achievement of the eight inter-connected ANPF objectives.

DND's NOSH initiative was presented in this paper as the framework through which to create departmental synchronization and revitalization of the northern narrative. The NOSH concept sees the construction of a system of GC sustainment hubs across the region that permit the efficient movement, transfer and employment of logistics services on land, air and sea. This whole-of-government system would enhance the full range of departmental activities, from scientific monitoring to enhancing continental defence, while concurrently advancing Indigenous reconciliation efforts. While hub locations have yet to be finalized, siting considerations like existing infrastructure, rigorous

environmental study, future communications projects and Indigenous participation will be key drivers in the final selection of NOSH sites. Finally, at an estimated budget of $4.2 billion over the next 25 years, it represents a fiscally responsible mechanism for achieving significant regional growth. However, if the NOSH is to be implemented at the speed of relevance demanded by climate change, it must be expeditiously advanced through GC's NPMS approval milestones.

Three strategic issues must first be addressed for the NOSH initiative to advanced. First is the restructuring of CIRNAC's ANPF central Oversight Committee to include dedicated specialist advisors from OGDs. While CIRNAC remains the best-positioned federal department to implement ANPF, a consistent lack of specialist advisors has greatly inhibited ANPF progression. Further, the NOSH is recommended to be executed as a DND-led project under CIRNAC supervision, with subordinate project management teams developing individual hubs with specific Indigenous communities. The second strategic issue is the GC's increasingly less-relevant existing northern narrative, which fails to balance the eight ANPF objectives effectively. This narrative must be revised if ANPF objectives are to be appropriately resourced. Additionally, federal departments must be informed of the decision-making criteria by which northern initiatives will be assessed. Finally, the lack of resourcing and alignment of Indigenous HR efforts with wider strategic aims fundamentally inhibits northern reconciliation and development by disjointing ANPF objectives from the very people the policy means to serve.

The NOSH initiative has the potential to unify whole-of-government efforts in the north. Its scalable design, modular implementation strategy and conditions-based siting

criteria provide Canada with a flexible and cost-effective solution to achieve its northern ambitions. Importantly, it works within the existing ANPF governance structure to enhance its performance and engender cross-function support between specialized departments. Most importantly, NOSH recognizes the centrality and importance of Indigenous support and participation in the planning and operation of desperately needed northern infrastructure.

The peoples of the Inuit Nunangat have waited patiently for decades for the GC to make good on past promises and to access the same services offered to southern Canadians. As the growing environmental and international effects of climate change mount, the need for proactive action in the north has never been more pressing. In the absence of alternative northern development strategies, it is strongly recommended that the NOSH initiative be approved for further study and implementation by the GC. While the GC ponders investment risks and policy minutia, the people of Canada's north are running out of time.

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