

Sovereignty and Human Security at Canadian Forces Station Alert

by

Nicholas J. Dunning

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Royal Roads University
Victoria, British Columbia, Canada

Supervisor: Michael Mitchell
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 Nicholas Dunning, 2016

COMMITTEE APPROVAL

The members of Nicholas J. Dunning's Thesis Committee certify that they have read the thesis titled *Sovereignty and Human Security at Canadian Forces Station Alert* and recommend that it be accepted as fulfilling the thesis requirements for the Degree of Master of Arts in Human Security and Peacebuilding:

Michael Mitchell [signature on file]

Dr. Robert Hanlon [signature on file]

Final approval and acceptance of this thesis is contingent upon submission of the final copy of the thesis to Royal Roads University. The thesis supervisor confirms to have read this thesis and recommends that it be accepted as fulfilling the thesis requirements:

Michael Mitchell [signature on file]

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Abstract

The Canadian Armed Forces (CAF) is a major player in exercising sovereignty and ensuring human security in Canada's Arctic. This research examined whether the mandate of Canadian Forces Station (CFS) Alert should be changed to enable the CAF to play an enhanced role in exercising sovereignty in the Arctic, in order to enable human security. Four overarching themes – *presence* (as a factor in sovereignty), *innovation*, *Arctic mobility*, and *further presence* (as a factor in human security) – were identified that describe how CFS Alert currently achieves this mandate and articulates further ways to advocate for human security. Through participant interviews, this research concluded that changes to the mandate of CFS Alert are not required. The research adds to the literature on human security, Arctic sovereignty, and provides policymakers and military commanders with practical recommendations on how to use existing strategic infrastructure to further safeguard Canada's Arctic and protect its citizens.

Keywords: human security; Arctic sovereignty; CFS Alert

List of Abbreviations

CAF	Canadian Armed Forces
CFS	Canadian Forces Station
DFO	Department of Fisheries and Oceans Canada
DND	Department of National Defence
DRDC	Defence Research and Development Canada
ECCC	Environment and Climate Change Canada
GAC	Global Affairs Canada
HADCS	High Arctic Data Communications System
INAC	Indigenous and Northern Affairs Canada
ISED	Innovation, Science and Economic Development Canada
nm	Nautical mile
NORAD	North American Aerospace Defence Command
NRCan	Natural Resources Canada
PS	Public Safety
RCMP	Royal Canadian Mounted Police
SIGINT	Signals Intelligence
TC	Transport Canada
UNCLOS	United Nations Convention of the Law of the Sea

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Chapter 1: Introduction

Canada is facing increasing pressure to exercise sovereignty over its Arctic territory. The Canadian Armed Forces (CAF) plays an active role in Canada's whole-of-government approach to exercising sovereignty in the Arctic and contributes to enabling human security in the region. One instrument that helps the CAF to exercise sovereignty is the existence of occupied military and civilian facilities in the Arctic. Augmenting the role and operational capabilities of existing installations, such as Canadian Forces Station (CFS) Alert, can markedly enhance the ability of the Government of Canada to exercise sovereignty and contribute to enabling human security in the Arctic region. This study explored whether such augmentation is required at CFS Alert, and if so, how this could strengthen Canada's ability to exercise sovereignty in the Arctic, and contribute to human security in the Arctic. Potential implications for permanent Arctic residents were also noted.

1.1 Description of the Problem

The Arctic is undergoing a rapid transformation owing to the effects of climate change. This has exposed two security challenges in Canada's Arctic – effective exercising of sovereignty and enabling human security.

As a legal concept embedded in international law, sovereignty is defined in this paper as, “supreme legitimate authority within a territory... supreme authority within a territory implies both undisputed supremacy over the land's inhabitants and independence from unwanted intervention by an outside authority” (Philpott, 1995, p. 357). Sovereignty also carries implications from a policy and academic perspective, both of which will be addressed later in the paper. Traditionally understood elements of sovereignty include land demarcations, such as those defined in a treaty or agreement, or reasonably static water features, such as an ocean or

lake. However, the rapidly changing landscape and seascape of the Arctic tests the foundation for territorial delineation. These changes bring a potential for negative effects on environmental security largely for the indigenous peoples in the Arctic (Exner-Pirot, 2012).

The temperature in the Arctic is increasing because of the effects of global warming, which is accelerating the melting of glaciers and permafrost. In turn, this is increasing the accessibility of the Arctic, most notably through maritime routes (Arctic Climate Impact Assessment, 2004, p.8). This increased access provides an incentive to exploit potential natural resource deposits in the region.

Drawn by the prospects of significant natural resources, such as hydrocarbon reserves, rare earth metals, and fish stocks, the five Arctic coastal states (sometimes referred to as the Arctic Five) – Canada, Denmark (on behalf of Greenland), Norway, Russia, and the United States – sought to secure their access to those natural resources through territorial claims (Livermore, 2014, pp. 1-4). Upon ratification of the United Nations Convention on the Law of the Sea (UNCLOS), states were given a ten-year period to submit claims of their extended continental shelf to the Commission on the Limits of the Continental Shelf (Library of Parliament, 2008, p. 4). The significance of these claims is tied to the potential for greater state access to mineral resources. If a state can scientifically prove the extension of its continental shelf, the exclusive economic zone rights could be extended from the usual 200nm (nautical mile) limit up to 350nm. As the Arctic Five states submit their respective bids for extended continental shelves it is likely that claims will overlap. This could result in potential legal challenges, and contest the national interests of Arctic states (Livermore, 2014, pp. 46-47). The potential for challenge underscores the importance for states to exercise sovereignty over their Arctic territory.

The CAF (including the Canadian Rangers), along with the Department of National Defence (DND) and other federal agencies such as the Canadian Coast Guard, Royal Canadian Mounted Police, Department of Fisheries and Oceans, Environment Canada, and Public Safety, is tasked with exercising sovereignty in the Arctic. Despite statements by the Government of Canada for the need to augment military capabilities throughout the Arctic, many promised capital projects meant to address this requirement, such as the building of new robust icebreakers, investing in a fleet of modern Arctic-capable naval vessels, and the creation of a deep-sea port in Nanisivik, Nunavut, have yet to materialize (Ciesielski, 2015, p. 20). For example, the deep-sea port in Nanisivik was originally planned to be completed in 2012, but due to a reduction in the scope of the port's function, and construction delays, the port will not open until 2017 (De Souza, 2015). While some Arctic projects are delayed, it should be noted the new Arctic-capable naval vessels are currently in production, with the first delivery expected in 2018 (Canadian Broadcasting Corporation, 2015). Therefore, as often has been the case in Canada's history, the CAF must investigate innovative ways to maximize the flexibility and capability of existing resources to rise to this security challenge – both from a sovereignty and human security perspective.

From the lens of human security, this researcher agrees with Trobbiani (2013) that sovereignty and human security are linked, and in some cases mutually supportive. Trobbiani argued that the modern notion of sovereignty can be extended from the use of military to defend and enforce legally defined borders to something more internal, which has to do with the well-being of its citizens and the rule of law – thereby empowering human security.

Human security emerged in the post-Cold War era as a new paradigm for understanding the security environment. At its core was the position that states no longer represented the same

kind of threat to global stability as they had during previous years. To that end, in 1994 the United Nations Development Programme suggested the need to focus on individual-based security, instead of state-based security. At its basis, human security is occupied with the ordinary security matters each person has in their daily life, instead of being concerned with narrow interpretations of security at state level. The United Nations advocated the following seven categories of human security: economic security, food security, health security, environmental security, personal security, community security, and political security (United Nations Development Programme, 1994, pp. 22-25). Human security has historically been a component of Canadian foreign policy in some fashion (Ross, 2001); however, human security is absent from the current Government of Canada policy related to the Arctic (Greaves, 2011, p. 231). There are nevertheless implicit expressions of human security in the current policy through the exercising of sovereignty in the Arctic. Therefore, this researcher asserts that the use of the CAF and specifically CFS Alert to exercise sovereignty in the Arctic, as part of a whole of government effort, enables elements of human security in this region.

1.2 Subject of the Study – CFS Alert

Using the case study method, this research investigated whether the role and capabilities of one particular CAF Arctic installation should be augmented, and if so, examine ways that would enhance its capacity to exercise Canada's sovereignty. The subject of this study is CFS Alert, the most northerly, permanently inhabited location in Canada – and the world. Established in 1958, CFS Alert is located on northeastern Ellesmere Island, Nunavut, approximately 800km south from the geographic North Pole. Located closer to Moscow than Ottawa, and with a complement of approximately 55 military and civilian personnel, the primary role of CFS Alert is a signals intelligence collection facility. This involves the interception and analysis of

communications and other electronic signals, in order to support other military operations such as the defence of North America, by identifying adversary or hostile forces' intentions. During the Cold War, this included intercepting Soviet communications between submarines, ships, and aircraft – thus making CFS Alert a strategically important listening post (Proc, 2014; Royal Canadian Air Force, 2014).

Additionally, the station also has a geolocation capability to support search and rescue operations. CFS Alert also hosts Environment Canada's Upper Air Weather Station and an Atmosphere Watch Observatory that conduct research on climate change in the Arctic. These latter two capabilities – search and rescue and support to science – demonstrate contributing to human security through environmental and personal security for citizens within the Arctic (NDDN047, 2015; Royal Canadian Air Force, 2014).

CFS Alert was chosen as the subject of this study due to its unique northern location and long-standing role in supporting sovereignty and security in the Arctic. CFS Alert is an integral part of the CAF's security network in the Arctic. The network includes other federal government partners such the Canadian Coast Guard, Royal Canadian Mounted Police, Department of Fisheries and Oceans, Environment and Climate Change Canada, and Public Safety, territorial and municipal governments, and the United States under the framework of the North American Aerospace Defence Command (NORAD). Key components of the CAF's security network in the Arctic include exercising sovereignty, working with federal partners, conducting surveillance patrols, monitoring and controlling airspace under the auspices of NORAD, conducting aerospace and maritime search and rescue, and maintaining CFS Alert as a signals intelligence collection facility (Canadian Armed Forces, 2014). The official mandate of CFS Alert is articulated as follows:

CFS Alert maintains signals intelligence facilities to support Canadian military operations. Signals intelligence is conducted remotely, using the equipment and facilities located at Alert. Personnel at CFS Alert also maintain a geolocation capability to support operations, and High Frequency and Direction Finding facilities to support search and rescue and other operations, and provide support to Environment Canada and Arctic researchers. Alert also plays a key role in projecting Canadian sovereignty in the Arctic. (Royal Canadian Air Force, 2014)

Simply stated by two interviewees for this research, CFS Alert's mandate can be described as, "signals intelligence, science, and sovereignty" (Participant E, Participant N¹).

CFS Alert is situated in the complex operational environment that is the Canadian Arctic. The Arctic covers approximately 40% of Canada's landmass, and contains 75% of its coastline. Spanning four time zones, the terrain is harsh, with long periods of limited daylight and poor weather (NDDN011, 2016). Ian Livermore (2014) provided a detailed overview of the unique operational hazards presented by the Arctic:

Weather conditions in the Arctic and High Arctic ... are extremely unpredictable, with high winds, storms, and whiteout conditions that can dramatically slow the movement of ground troops and military land vehicles. These same conditions, along with fog and widespread cloud cover, can seriously impede air force operations. Extreme cold can cause equipment to freeze up and cause frostbite and hypothermia to troops exposed to the elements. (p. 17)

¹ Interview participants will be cited by their alphabetic code in this research. See Table 2: Summary of interview participant codes.

Livermore's analysis articulated the unique challenges for military operations in the Arctic, which stem largely from the environment. These environmental hardships are equally shared by Arctic residents who are faced with these challenges as part of daily life. Equipment degradation also occurs much quicker in the Arctic than in southern Canada, with one interview participant estimating a reduction of 50% in the anticipated lifespan of Arctic-deployed equipment such as snow plows. This helps to underscore, as one interviewee recounted, that the complexities of operating and living in the Arctic are substantial, and pose unique challenges to the CAF (Participant M), while also reinforcing how the CAF can contribute to the safety and security of individuals in this harsh environment.

1.3 Research Questions

The purpose of this research was to examine how CFS Alert exercises sovereignty in the Arctic and determine if, and how, this mandate could be expanded and augmented to ensure human security in the Arctic. The research sought the perspectives of military and civilian participants with experience at CFS Alert, as well as CAF and DND officials with relevant policy and staff experience.

The hypothesis was: With the Arctic becoming increasingly accessible, the mandate of CFS Alert should be expanded to enable greater exercise of sovereignty in the Arctic through a strengthened presence at CFS Alert, which will thereby further contribute to human security in the Arctic.

The primary research question was: Does the mandate of CFS Alert need to be expanded and augmented to enable a greater exercising of sovereignty in the Arctic, to ensure human security?

The secondary research questions were:

1. How can the role of CFS Alert be expanded?
2. What are the policy implications of an expanded mandate at CFS Alert?

1.4 Background

This section will help to contextualize the subject of this research, by reviewing the geostrategic context, human security, Government of Canada policy toward the Arctic, Arctic policy signals from Prime Minister Justin Trudeau, CAF capabilities in the Arctic, and threats in the Arctic.

Geostrategic context. The Arctic is considered an emergent region for its geostrategic importance, which has important sovereignty implications for Canada, as it relates to territorial limits. This emergence is driven largely by the increasing accessibility of the Arctic region combined with its economic potential (Adair, 2012, p. 110; Huebert, 2011, pp. 38-39). Access to the region is increasing mainly due to global warming, which is accelerating the melting of glaciers, sea ice, and causing a warming of the permafrost. According to Global Affairs Canada (formerly called the Department of Foreign Affairs, Trade, and Development Canada), this changing strategic environment poses sovereignty challenges in the Arctic for Canada (Department of Foreign Affairs, Trade, and Development Canada, 2010, p. 5). Human security challenges also exist, as arctic warming is projected to bring wide-ranging societal changes and impacts that will effect inhabitants in the Arctic over the next century, including food security challenges, expanded maritime shipping, and health concerns (Arctic Climate Impact Assessment, 2004, pp. 8-16).

Government of Canada policy. Three foundational policy documents – the *Canada First* Defence Strategy, Canada’s Northern Strategy, and Canada’s Arctic Foreign Policy – create the framework within which CAF operations in the Arctic may be viewed. All three policy

documents articulate that the CAF are required to be a major part of a larger whole-of-government team that exercises sovereignty through the Arctic. Although a defence policy review is underway (Government of Canada, 2016), these policy documents remain extant in direction. The early Arctic policy signals from Prime Minister Justin Trudeau will be discussed later in this section.

The *Canada First Defence Strategy* (Department of National Defence, 2008) provided guidance on defence policy for the CAF. The *Canada First Defence Strategy* prescribed a strategic direction for the CAF in the Arctic, to include the ability to exercise sovereignty, which was described as the ability to “exercise control over and defend Canada’s sovereignty in the Arctic” (p. 8). Emphasizing the domestic component of the strategy, of six core missions the CAF will have the ability to conduct, the first mission includes “daily domestic operations... including in the Arctic” (p. 3).

In order to exercise sovereignty in the Arctic, the *Canada First Defence Strategy* articulated the following key activities for the CAF: Increased surveillance and reconnaissance of Canada’s territory in the air and maritime domain – under an integrated “system of systems” approach; maintenance of search and rescue capabilities; and assisting civil authorities against a range of security threats (p. 7, p. 17). Search and rescue capabilities contribute to human security by re-establishing the personal security of Arctic residents and visitors in times of crisis. In order to achieve this mandate, the CAF was instructed to maintain a visible presence, and there is an expectation that the military will be required to provide additional support to other government departments to respond to threats that may arise (p. 6). The *Canada First Defence Strategy* further instructs the CAF to cooperate with other government departments in the Arctic, by explicitly stating that a whole-of-government approach is required (p. 14). Through its three-

fold mandate of signals intelligence, science, and sovereignty, it is evident that CFS Alert is well nested within the current defence policy.

Canada's Northern Strategy (2009) and Canada's Arctic Foreign Policy (2010) provided policy direction to orient the larger Government of Canada approach to the Arctic. Canada's Northern Strategy (2009) provided an integrated cross-departmental approach to the Arctic. Of the four key pillars that form the basis of the strategy, exercising Arctic sovereignty was defined as the key pillar (Government of Canada, 2009, p. 2). Noteworthy in this policy is the CAF is called upon to sustain its presence in the Arctic, and specifically mentioned maintenance of CFS Alert as a signals intelligence receiving facility (p. 11). Canada's Arctic Foreign Policy (2010) provided policy direction on the outward interaction of Canada's Arctic with other nations. Notable are the specific examples of activities that constitute exercising sovereignty such as, "social and economic development, Arctic science and research, environmental protection, the operations of the Canadian Forces or the activities of the Canadian Coast Guard and Royal Canadian Mounted Police" (p. 7). Therefore, although not named as such, human security elements are present in Government of Canada policy, along with connections between the CAF, sovereignty, and human security.

This policy framework is important for this research, in particular when considering the main research question that related to CFS Alert's mandate, and whether it should be changed to enable an enhanced capacity to exercise sovereignty, and thereby contribute to enabling human security in the Arctic.

Arctic policy signals from Prime Minister Justin Trudeau. As of this writing, since forming government in November 2015, Prime Minister Justin Trudeau has sent his strongest Arctic policy signals through a joint statement with the President of the United States – Barack

Obama – in March 2016 on “Climate, Energy, and Arctic Leadership” (Prime Minister of Canada, 2016). Arctic leadership was signalled as a joint Canadian-American approach to addressing climate change problems by combining scientific research with local Indigenous science and traditional knowledge. Through this approach, sustainable economic development will be promoted (Prime Minister of Canada, 2016). Early Arctic policy signals from Prime Minister contain no mention of Arctic sovereignty, nor explicit mention of human security. However, this researcher assumes that existing CAF/DND capabilities in the Arctic will continue into the short-term, and implicit linkages to human security will also continue to exist.

CAF capabilities in the Arctic. The CAF currently have a “system of systems” approach to capabilities in the Arctic (Department of National Defence, 2008; Participant C). These capabilities exist in the land, maritime, air, and space domains. These capabilities provide the CAF both a permanent and semi-permanent presence, and are often utilized during operations conducted in the Arctic.

The “system of systems” capabilities include a variety of integrated surveillance sensors (such as the North Warning Site System that provides early-warning radar of airspace threats), aircraft (such as the CC-177 Globemaster III), maritime vessels (such as the Kingston-Class Maritime Coastal Defence Vessels), and space satellites (such as RADARSAT II) (Participants B, C, D).

The largest CAF presence in the Arctic is the Canadian Rangers – approximately 5,000 personnel who are a sub-component of the CAF reserves. The Canadian Rangers are a voluntary force, and possess unique skills related to survival, navigation, and living in the Arctic. The Canadian Rangers conduct a variety of duties that reinforce sovereignty and contribute to human security through search and rescue, community evacuations, and Arctic patrols; they are often

considered Canada's "eyes and ears" in the Arctic thus playing a unique role in the community and personal security of Arctic residents. (NDDN011, 2016; Lajeunesse, 2015).

The CAF conducts a number of operations in the Arctic. Three major operations are conducted annually, which typically occur in the High Arctic, Western, and Eastern Arctic: Operation NANOOK, Operation NUNALIVUT, and Operation NUNAKPUT. Whole-of-government partners also partake to reinforce the team-approach to operating in the Arctic. Specifically related to CFS Alert, two principal operations occur each year – Operation BOX TOP and Operation NEVUS. Operation BOX TOP is a twice-annual re-supply of CFS Alert of fuel and dry goods. Supplies are moved by airlift from US Air Force Base Thule in Greenland to CFS Alert, which underpins the importance of international cooperation in the Arctic. Operation NEVUS is an annual deployment of a technical team to Ellesmere Island to conduct maintenance on the High Arctic Data Communications System (HADCS) – a series of microwave repeating stations stretching from CFS Alert to Fort Eureka (approximately 500km). The HADCS provide critical communication links from CFS Alert and communication centres in Ottawa, as CFS Alert is too far north to "speak" with certain communication satellites (Canadian Armed Forces, 2014; NDDN011, 2016; Royal Canadian Air Force, 2014).

Threats. There is consensus that Canada does not face a direct conventional military threat in the Arctic (Hébert, 2014; Huebert, 2011; Standing Senate Committee on National Security and Defence, 2011) although there is some concern related to Russia enhancing its Arctic forces in the coming years (Balasevicius, 2011, p. 25). The threats faced in the Arctic are wide-ranging and largely unconventional. The unconventional threats in the Arctic include a range of scenarios such as criminal activity, human smuggling, drug smuggling, air and maritime traffic, and environmental pollution (Hébert, 2014; Standing Senate Committee on National

Security and Defence, 2011; Adair, 2012; Arctic Council, 2009). These threats pose a challenge to the state apparatus and also to the human security of Arctic residents. Thus, the CAF plays an important role in exercising Canada's sovereignty in the Arctic, by "exercising effective control in response to specific needs and interests in Canadian territory and internal waters...through focused efforts to monitor northern activity and respond to unconventional security situations, and by assisting other government departments to respond to threats that arise" (Lajeunesse, 2015, p. 1).

Chapter 2: Literature Review

In order to survey the existing literature, and frame gaps related to this research, this chapter will examine the following three key areas: Human security and the Arctic; Arctic sovereignty; and CFS Alert.

2.1 Human security and the Arctic

Human security has in varying forms been part of Canada's foreign policy since the mid-1990s. Some academics have suggested human security has been the defining feature and central pillar of Canada's foreign policy, noting its "ethical guide" to foreign policy (Riddell-Dixon, 2006; Greaves, 2011). However, human security as a concept and indeed foreign policy approach has been equally criticized, principally for its lack of utility as a foreign policy concept (Paris, 2001; Chandler, 2008). For example, Paris (2001) noted that human security is, "slippery by design...[which] diminishes the concept's usefulness as a guide for academic research or policymaking" (p. 88). Owens and Arneil (1999) believed human security is, "too broad and vague a concept to be meaningful for policy makers" (p. 2). Although contentious, there is value when examining security from the lens of human security; the researcher asserts that addressing the concerns of individuals is an effective guarantor of broader security. While human security can be a difficult concept to enable policy development and policy goals, human security elements can form an important pillar within a state's security policies.

When examining threats to human security in the Arctic, the literature widely recognizes the principal threats facing Arctic residents as: environmental, health, and cultural (or, as the UNDP calls it – "community") security. The consensus amongst the academics is that climate change is having, and is projected to have, detrimental effects on Arctic residents. In particular, the literature asserted that climate change, and its current and future implications, will have

detrimental effects on the ways of life of the indigenous populations of the Arctic (Exner-Pirot, 2012; Greaves, 2012; Heininen, & Nicol, 2007; Nicol, & Heininen, 2014). For example, from an environmental security perspective, Exner-Pirot (2012) argued that climate change threatens the food and shelter supplies upon which the Inuit traditionally depend. Exner-Pirot then linked environmental security with cultural security, as the Inuit people have identified climate change as a threat to their culture and their community's ways of life (pp. 4-5).

It is noteworthy to recognize that these three principal human security threats have had a unifying effect regionally between states within the Arctic. Furthermore, Exner-Pirot (2012), and Heininen and Nicol (2007) both observed that common ground was found amongst the Arctic states by seeking to address these human security challenges, which was principally expressed through cooperation through the Arctic Council.

When examining the role of the military as it relates to human security and the Arctic, the literature displayed a preference for de-militarization, or at least caution in the role of the military. For example, Heininen (2004) was critical of the environmental impact caused by military forces operating in the Arctic, such as the pollution stemming from the Canadian Defensive Early Warning Network of radars, and the loss of the Kursk nuclear submarine in 2000. Heininen warned of potential future impacts as the Arctic becomes more accessible to militaries (pp. 219-220). Furthermore, Greaves (2011) offered a scathing rebuke of Canada's three foundational policies regarding the Arctic – the *Canada First* Defence Strategy, Canada's Northern Strategy, and Canada's Arctic Foreign Policy – for lacking a human security focus, and over-emphasizing security and military components. Specifically, Greaves noted, "Canada's approach to Arctic security remains preoccupied with traditional, state-centric military threats, despite the fact that all three documents explicitly specify that no such military threats exist" (p.

230). While Greaves prescribed broad solutions, such as focusing policy on climate change-specific sciences, his articles lack concrete recommendations for policymakers to allocate resources. Indeed, Greaves claimed that the Government of Canada has a “preoccupation of the Canadian government with dubious questions of Arctic sovereignty and military defence contributes to human insecurity in the region” (p. 240). Yet, beyond large-sale procurement of military capabilities, Greaves did not delve further into possible linkages between defence contributions to human security, thus exposing a gap in the literature that this research addresses.

Despite critical views of the military’s role within the Arctic, this paper adopted a normative approach and sought to understand positive ways the military, through exercising sovereignty, could contribute to human security in the Arctic. It is relevant to note that there is also emerging scholarship that is exploring the connections between human security and sovereignty, instead of as opposites on a spectrum. As mentioned earlier, Trobbiani (2013) asserted that connections can exist between sovereignty and human security. Trobbiani asserted that because the state plays an unavoidable role in providing security, he therefore views human security as complementing the role of the state. Therefore, a link exists between a state exercising sovereignty and enabling human security (Trobbiani, 2013). Silva (2011) argued that the concepts of human security and sovereignty are not necessarily opposite, but rather connected through complex interaction. Finally, Sundberg (2014) developed a theoretical definition of sovereignty that included elements of both state sovereignty and human security. These connections are important, and underscore the approach this paper adopted, whereby exercising sovereignty in the Arctic contributes to human security.

Research related to the Arctic and human security continues to develop. Although this research employed a state-centric perspective approach (as will be explained in Chapter 3), there

are nonetheless important gaps in the human security literature that are addressed through this research. For example, illustrations of the CAF's role in exercising environmental stewardship are lacking – thus, addressing environmental security from a human security perspective. The literature is not well-developed in exploring how new technologies tested in the Arctic can improve lives in the Arctic – thus addressing health and community security. Therefore, this research fills important gaps in the human security literature of providing tangible examples of how the CAF, through exercising sovereignty at CFS Alert, actually contributes to human security in the Arctic, as part of a larger whole-of-government effort.

2.2 Arctic sovereignty

The concept of sovereignty as a legal term was defined earlier in this paper. Specific to this research, there are political and academic interpretations of Arctic sovereignty.

From the perspective of the Government of Canada, the definitive government policy statement on Canada's Arctic sovereignty with respect to territorial and maritime claims is found within Canada's Arctic Foreign Policy (2010). Specifically, the policy stated that, "our sovereignty over Canadian Arctic lands, including islands, is undisputed—with the single exception of Hans Island, a 1.3-square-kilometre Canadian island which Denmark claims" (p. 7). The policy further stated that disagreements exist between, "the United States and Canada regarding the maritime boundary in the Beaufort Sea (approximately 6,250 square nautical miles) and between Canada and Denmark over a small part of the maritime boundary in the Lincoln Sea" (p. 8). The policy also noted that Canada considers the Northwest Passage as internal waters (p. 14). It is notable that, internationally, only Canada and Russia consider the Northwest Passage as Canada's internal waters (Participant F).

While the previously mentioned foundational policy documents articulated the Government of Canada's position towards Arctic sovereignty, and provide examples of what is meant by exercising sovereignty, the documents lack a clear definition of the term "sovereignty." Within the research, the term "Arctic sovereignty" is a divergent term, with its main cleavages resulting from philosophical underpinnings that relates to one's views of the world and perceptions of threats.

Based on extensive study of the Arctic and its relation to sovereignty, Grant (2010) articulated two definitions of sovereignty – *de jure* and *de facto*. *De jure* sovereignty is defined as, "supreme power or title over a specific territory by political or legal right recognized by other nations" (p. 12). The term *de facto* sovereignty was defined as:

Having power 'in fact' or in real terms, but usually without the political or legal right inherent in *de jure* sovereignty. The term is usually applied in the negative, as in the case of a loss of economic, political, or military control over a specific area by a sovereign nation. (p. 13)

From Grant's definitions of sovereignty, combined with Canada's policy documents on the subject, it is apparent this research falls within the *de jure* interpretation of sovereignty.

Since 2008, clarity about terms such as "Arctic sovereignty" and the associated role of the CAF have been addressed primarily by three academics – Rob Huebert, Franklyn Griffiths, and P. Whitney Lackenbauer. A synthesis of their research is found in Griffiths (2011) *Canada and the Changing Arctic: Sovereignty, Security, and Stewardship* – a self-described "white paper" that provided direction related to Arctic sovereignty. Succinctly, each principal author's viewpoint is summarized as follows (Adair, 2012, pp. 26-30). Huebert espoused a realist approach emphasizing additional military resources. Huebert wrote that sovereignty is

strengthened through the presence of military and civilian populations in the Arctic, with specific emphasis on the ability of the Government of Canada being able to assert control over the Arctic (pp. 14-15, 39). Griffiths is a constructivist and urged a post-modernist approach where Canada ought to seek collaboration and cooperation. He called upon Canada to pursue “vigorous cooperation” in the Arctic, which is underpinned by stewardship of the Arctic region by local governance and respect for the environment (pp. 181-186). Lackenbauer articulated a perspective advocating for a bilateral approach in conjunction with the United States, and rooted in international law. Lackenbauer cited that, “Canada’s most successful unilateral actions have been backed up by negotiations with our American allies: We have long-standing precedent in “agreeing to disagree” with the United States while safeguarding our essential interests” (p. 73).

Regarding the literature on the role of the CAF in exercising sovereignty in the Arctic, key similarities among Huebert, Griffiths, and Lackenbauer include: advocating for a more substantive engagement in the Arctic (moving beyond the status quo); a role for the CAF (with disagreement about what that entails); and the need for more multilateral and regional engagement. Key divergences include the nature of how to exercise sovereignty in the Arctic – Huebert advocated for more military presence, while Lackenbauer promoted a balanced defence, diplomacy, and development approach (Griffiths, 2011, pp. 1-12). Historical Canadian perspectives on Arctic sovereignty are provided by Coates, Lackenbauer, Morrison & Poelzer (2009).

Legal interpretations of Arctic sovereignty are found with Byers (2009), in an attempt to combine legal and political interfaces related to Arctic sovereignty. Byers (2010) also advocated for greater cooperation in the Arctic, as he did not perceive there to be appetite for military confrontation, nor a race for resources (pp. 911-912).

This section briefly highlighted the diversity of viewpoints within academia about Arctic sovereignty and the philosophical underpinnings for the employment of the CAF in exercising sovereignty. The broad understanding of Arctic sovereignty supports the importance of employing interpretive approaches to this research that enabled participants and the researcher flexibility. It should be noted, for the CAF, interpretations of sovereignty fall into the realm of policy, as noted by Lieutenant-General Bowes – the commander responsible for conducting CAF operations in Canada (NDDN011, 2016).

2.3 CFS Alert

In spite of its long-standing existence, there is little academic scholarship about CFS Alert. Typically, academic research featuring CFS Alert is either science-related or historical.

CFS Alert has been the staging area for a series of published Arctic scientific experiments. Recent scholarship included a sleep study by measuring melatonin production (Paul, Love, Hawton, & Arendt, 2015); gaseous elemental mercury levels at CFS Alert measured over eight years (Steffen, Schroeder, Macdonald, Poissant, & Konoplev, 2005); and permafrost monitoring (Smith, Throop, & Lewkowicz, 2012). While there are additional scientific studies based out of CFS Alert, they remain outside the scope of this research, and will not be addressed further in this research.

Beyond scientific research, there is limited historical literature about CFS Alert. Most frequently, CFS Alert is noted as an Arctic capability by its presence on Ellesmere Island, or perhaps a cursory historical note about its origins (Griffiths, 1987; Sloan 2005). Historical accounts of CFS Alert's history was provided by Pigott (2011) and Gray (2004). These works provided historical contextualization of CFS Alert within the Cold War and post-9/11 era, and

examples of life at CFS Alert. These works did not frame CFS Alert within the context of either sovereignty or human security.

Heide (2012) provided an historical view of CFS Alert, but also drew out implications for the *Canada First Defence Strategy*. In addition to articulating an historical narrative of CFS Alert composed from many primary documents, lessons from the study included articulation of the logistical complexities of northern operations, search and rescue challenges, and morale implications for isolated deployments. While these were important lessons, what was lacking in the study was an examination of how CFS Alert exercises sovereignty and contributes to human security within the Arctic region. Heide recommended further study of northern military establishments to gain insight into all aspects of modern day government northern initiatives.

The literature on CFS Alert and its ability to exercise sovereignty and ensure human security is sparse. This research fills this gap in the literature.

2.4 Conclusion

This chapter summarized that human security and the Arctic is a developing field of study. Further, there is emerging scholarship on the connections between sovereignty and human security. The term Arctic sovereignty is divergent, with multiple viewpoints comprising legal, political, and academic components. From this literature review it is clear there is a dearth of academic literature related to CFS Alert.

The literature to date has not included an in-depth examination of how sovereignty is exercised at CFS Alert, nor the implications this carries for human security. To address specific knowledge gaps, this research:

1. Contributes to the human security literature related to the Arctic;

2. Designates links between sovereignty and human security, specifically by providing tangible examples of how the CAF, by exercising sovereignty, actually contributes to human security in the Arctic;
3. Contributes to the study of Arctic sovereignty through a detailed description of how CFS Alert currently exercises sovereignty at CFS Alert;
4. Details a “bottom-up” examination of how an existing CAF northern installation can be enhanced to further exercise sovereignty; and
5. Provides an extensive narrative about the larger role of CFS Alert, beyond its historical description.

Chapter 3: Methods

This chapter outlines the conceptual and theoretical framework that underpinned this research. State-based approaches of realism and liberalism provided an appropriate framework, given the nature of sovereignty, and the state being the responsible actor for CFS Alert. The research design employed qualitative research using a case study methodology. This provided a unique examination of CFS Alert from the perspective of those with the lived experiences. The participants of this study were then described, in order to demonstrate depth and breadth of experience for this research. Finally, the sampling procedures detailed the data collection, analysis, and coding of the data. Semi-structured interviews formed the basis of the data collection, and applied thematic analysis was used to analyze and code the data.

3.1 Conceptual and Theoretical Framework

This research used a theoretical framework which focused on the role of the state, because the state is the responsible actor for exercising sovereignty and for controlling CFS Alert. As a military installation, CFS Alert is controlled by the state, and exercising sovereignty influences other states and nations; therefore, international relations theory was used. Specifically, this research fell into a blended use of two classical approaches to international relations – realism and liberalism. Elements of both dominant paradigms were used to create this framework. Both were appropriate to frame this research, as pairing these approaches ensured a wide view of the means the state uses to exercise sovereignty. Through an examination of these means, the ends of exercising sovereignty through CSF Alert have both state-based and individual-based implications. As Steinveg (2014) illustrated, the literature on Canadian Arctic policymaking includes both realism and liberalism, thus supporting the appropriateness of the framework for this research (Steinveg, 2014, pp. 2-3).

The combination of realism and liberalism might appear unusual when considering human security implications of Arctic sovereignty; however, this research was framed by the understanding that no one paradigm is capable of entirely explaining all security nuances, and that different paradigms can yield valuable contributions to the literature (Tadjbakhsh, & Chenoy, 2007). Traditionally, as a theory, human security used individual life as the referent object – that is to say the objective of security (Alkire, 2003; Fukuda-Parr, & Messineo, 2012, p. 3; Owen, 2004). While this research indirectly involved human security outcomes, the main focus was on the examination of the role of the state actor – CFS Alert – that is responsible for delivering a range of effects, which benefit both the state and the individual. Therefore, this further supports the blended application of state-based theories.

Realism is often cited as a classical approach to international relations. Realism was described by Walt (1998), as depicting, “international affairs as a struggle for power among self-interested states and is generally pessimistic about the prospects for eliminating conflict and war (p. 31). Central to the realist theory is the belief that the state is the central and only rational actor in a world that otherwise exists in “anarchy” – meaning an unpredictability of other states’ behaviour. The realist belief ascribes to the maximal pursuit of security, as expressed through diplomatic and military means. The key factor to ensuring stability throughout the international system is the balance of power, as achieved by the distribution of military capabilities (Tadjbakhsh, & Chenoy, 2007, pp. 80-81). It is from the perspective of enabling security – both for the state and for the individual – through the application and use of military means, which rendered components of realism relevant to be included in the theoretical approach.

Additionally, realism was appropriate for this research given its history of successfully combining theory with policy outcomes (Owen, 2004, pp. 376-377). The recommendations

stemming from this research sought to inform policymakers, and military commanders and staff. Therefore, a theoretical framework which included close connection between theory and policy was an important consideration.

It is relevant to note that realism is often an outward perspective, one which examines threats posed to challenge the states. The fact that the Arctic writ-large has a changing geostrategic environment which raises the interest of other states toward the Arctic and heightens the potential for future threats is another reason realism was included as a relevant theoretical approach for this study (Adair, 2012, p. 28). Yet, at the same time, the outward-perspective of realism is not fully consistent with the nuanced security situation in the Arctic which faces more internal threats relative to external threats. The internal threats, which directly affect Arctic residents, stem from domestic security and safety challenges that occur in a difficult operating environment (Hébert, 2014, p.3). This nuanced security environment highlights one of the limitations of using realism and thus necessitated the employment of multiple paradigms.

Owen (2004) noted another limitation of using realism from the perspective of human security. Owen posited that realism does not account for the possibility that the state is a possible internal aggressor and cause of suffering (pp. 380-381). While this may hold true when examining states experiencing conflict, this view is most appropriate for countries seized by internal conflict and violence far greater than anything experienced in Canada. As noted by Exner-Pirot (2012), [Canadian] Arctic residents are not particularly vulnerable to state-led threats, such as the fall-out of civil war or ethnic cleansing (p. 3).

In Canada, the application of the military in the Arctic is nested less in an application of force but more in a supporting role to other government departments to address emerging safety and security concerns (Hébert, 2014, p. 3). Since the use of military in the Arctic transcends use

of force, liberalism was a useful addition to the theoretical framework used in this research. Liberalism draws its roots to economic interdependence, democracy, and international institutions as being factors that will discourage states from using force (Walt, 1998, p. 32). Holding a similar view as realism that the international system is in a state of anarchy, liberalism diverges from realism with the belief that regulation and constraints can be used to foster the conditions for order. Security is therefore not only achieved through military force, but also through political and economic factors (Tadjbakhsh, & Chenoy, 2007, pp. 85-86). Liberalism also sees the state as a central actor in the international system, but seeks peace and stability through the interdependence and cooperation of states. International cooperation is a factor Canada espouses toward when considering the Arctic involvement with other states (Department of Foreign Affairs, Trade, and Development Canada, 2010). This cooperation also exists internally through the whole-of-government perspective when examining how the different government security actors cooperate at CFS Alert and in the Arctic (Hébert, 2014, p. 10).

The government's approach to the Arctic is guided by and informed from Canada's foreign policy. As Adair (2012) articulated, liberalism has been influential in such policies (pp. 23-24). This highlighted the importance of including liberalism in the theoretical framework for this study to ensure the research was not limited to a military-focus of exercising sovereignty, by remaining open to political and economic factors which are more predominant from a civilian perspective.

The use of international relations theories—realism and liberalism—was also well suited to the use of the normative approach. This study defined the normative approach as producing ideals about what “ought to be” (Ramel, 2011, p. 1727). The researcher employed a baseline assumption within this study that the CAF is a force of good in the Arctic. Although this is

contested, as previously discussed, the underlying goal of this study was to acquire positive accounts and information about what should be occurring to facilitate Arctic sovereignty and enable human security. Jackson-Preece (2011) articulated that a normative view is useful when examining security in international relations and seeks to examine both the means and the ends of security (p. 16). Since this study included focus on the means used to exercise sovereignty and enable human security in the Arctic, a normative approach was fitting.

The combination of realism and liberalism through the view of a normative approach was appropriate for the study of whether, and how, the mandate of CFS Alert can be expanded to enable a greater exercising of sovereignty, with a concurrent view to advocate for human security. Although state-centred perspectives form the primary lens for this study, the researcher asserts that implications for human security will nonetheless emerge through this research.

3.2 Research Design

Qualitative research was used for this thesis. Marshall and Rossman (2016) generally defined qualitative research as, “pragmatic, interpretive, and grounded in the lived experiences of people” (p. 2). Furthermore, Marshall and Rossman (2016), identified that qualitative research typically: occurs in the natural world; is fundamentally interpretative; and draws on multiple methods that respect the humanity of the participants in the study (pp. 2-3). Qualitative research was an appropriate methodology, as the research fundamentally sought to interpret the perspectives of participants with experience at CFS Alert and the Arctic.

More specifically, the research design used was the case study methodology. This research followed the case study approach espoused by Robert K. Yin (as cited in Baxter & Jack, 2008). Baxter and Jack (2008) described the case study methodology as follows:

An approach to research that facilitates exploration [of an issue] within its context using a variety of data sources. This ensures that the issue is not explored through one lens, but rather a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood. (p. 544)

Fundamentally, the case study methodology rests upon a constructivist belief – one where the truth is relative, and dependent on one’s perspective. Close collaboration between the researcher and the participant underpins the ability of this methodology to glean the relative perspective. According to the literature, it is appropriate to use the case study when attempting to answer “how” and “why” questions (Baxter & Jack, 2008, p. 545). The case study methodology was valid as the research examined how CFS Alert exercises sovereignty in the Arctic, and contributed to our understanding of how this mandate can be expanded. The uniqueness of the research stems from the case study of those participants with the lived experience at CFS Alert and with the Arctic.

Prominent case study experts Yin (2003) and Stake (1995) advocated the importance of binding a case, in order to keep the scope reasonable (as cited in Baxter & Jack, 2008, pp. 546-547). Therefore, this research bound the case in two ways—by time and by organization. Participants were limited to those with recent experience being defined as 2008 and onward. This date was chosen as it related to the issuance of the *Canada First Defence Strategy*. Binding to 2008, and the release of the defence strategy, enabled meaningful comparisons to the *Canada First Defence Strategy*. Participants were also limited by organization, specifically DND/CAF. These organizations were chosen in order to provide a defence perspective, which was appropriate since CFS Alert is military-run and staffed by DND/CAF personnel.

The research followed a descriptive type case study. As described by Yin (2003), “This type of case study is used to describe an intervention or phenomenon and the real-life context in which it occurred” (as cited in Baxter & Jack, 2008, p. 547). The research design followed a single case with embedded sub-units. The single case is CFS Alert and Arctic sovereignty, while the sub-units are the participants of varied backgrounds. As Baxter and Jack (2008) highlighted, this type of design affords the ability to analyze data within and across sub-units, and enabled a “rich analysis” to illuminate the case (p. 550).

As noted by Yin (2003) (as cited in Baxter & Jack, 2008, p. 554), multiple data sources are a hallmark of the case study. For this research, multiple data sources were used, which came from multiple semi-structured interviews and limited document analysis. Semi-structured interviews employ, “questions used ... [that] are not necessarily prepared in advance; instead, they evolve as the interviews progress” (Barlow, 2010, p. 497). Semi-structured interviews enabled a more in-depth understanding of the unique perspectives and experiences of participants. Document analysis, “can provide a window into a variety of historical, political, social, economic, and personal dimensions of the case beyond the immediacy of interviews and observations” (Olson, 2010, p. 319). The intent for data collection was for the convergence of the data from various data sources to provide a “holistic understanding” of the issue of CFS Alert and Arctic sovereignty, and how CFS Alert’s mandate can be expanded (Baxter & Jack, 2008, p. 554).

To report the findings of the case study, this research used a formal form of reporting – this thesis. Simons described the formal type of reporting:

It usually starts with an introduction describing the research, the case, question or problem to be investigated and then, chapter by chapter, outlines the nature of the project,

its history and evolution, how it is located in a national or international policy context and the methodology adopted. Later chapters outline the findings or results, frequently with a theme or issue focus. The final chapter draws conclusions and discusses implications for action and policy. (Simons, 2009, p. 149)

Formal reporting is appropriate for this research, as its consistent approach will help communicate the results to the intended audiences within academic settings, and also to policymakers and commanders within the CAF and the DND.

Overall, the case study methodology presented sufficient advantages for the research. As indicated by Meyer (2001), the “flexible and responsive” collection methods allowed for amplification and diversification of data (p. 347). This helped to ensure collection of data in an area that has not been broadly studied to date. Additionally, the case study approach is recognized as enabling a researcher to gain “tremendous insight” into a case (Baxter & Jack, 2008, p. 556).

The greatest shortcoming with the case study approach is the limitation in achieving generalizability. Moriceau (2010) referred to generalizability as, “the ability of extending the validity of one's case study conclusions to other cases of the kind” (p. 419). While recognizing the limitations of generalizability, the intent of the research was closer to “simplifying” data about an area not widely studied, and enable follow-on testing (Eidlin, 2010, p. 67). Further, as noted by Simons (2009), the outcomes of this research, while perhaps not being generalizable, “can also be educative in policy contexts to give those involved in policy-making access to the vicarious experience of the case to inform their judgements” (p. 166). The narrow focus of this research is therefore beneficial to policy-makers and decision-makers by facilitating access to

information about CFS Alert, as it has not been widely studied from the lens of Arctic sovereignty.

3.3 Participants

Semi-structured interviews were conducted with 14 participants (n = 14) over a 28-day period in June and July 2016. A summary of participant codes and interview dates is found at Appendix A. Further participant descriptions are shown below at Table 1:

Table 1

Description of participants

Characteristic	Description	n =
Occupation	Former Commanding Officer	4
	Former senior enlisted member	1
	Current defence official	6
	Current Arctic analyst	1
	Former senior defence official	1
	Current Global Affairs Canada senior official	1
Experience	Deployment experience (in months): 6-7	5
	Policy/staff experience (in years): 1-5	5
	Policy/staff experience (in years): 6-20	4
Gender	Male	12
	Female	2

Note. Participants include all 14 individuals interviewed during the course of this research.

This diverse and experienced group of participants provided relevant and varied breadth and depth to this research, with a unique defence perspective.

This sample presented the potential for organizational biases. In hierarchical organizations such as the CAF and DND, rank and positional differences between the interviewer and participants existed to some extent during the interviews (the researcher was of

equal or lower rank to the participant in all but one instance). In order to mitigate these potential biases, information was corroborated by additional participants.

3.4 Sampling Procedures

Recruitment. Recruitment of participants was achieved through a combination of identifying participants through publically available sources such as newspapers, the researcher's knowledge of relevant contacts, and snowball sampling. Snowball sampling is defined as, "a process whereby during or after the interview the participant is asked to identify other members of the population group, and then that individual is interviewed and asked to provide further names to be contacted for the study" (Robson, 2002, p. 265). Snowball sampling does contain inherent biases from a certain population sub-set, as eligible participants are linked to the original informant (Morgan, 2008, p. 816). This bias was mitigated by seeking diverse participants across multiple functions and occupations

Requests to participate in the research were sent by email. Seventeen requests were sent for interviews; fourteen people participated in the interviews; one person declined to be interviewed; and two people did not respond to the request. This represented an 82% success rate with recruitment. Snowball sampling was more effective at recruitment than initially anticipated – eight of the fourteen interviews were gained through snowball sampling. Participants were provided with the interview questions ahead of time to prepare for the interview. The recruitment process occurred quickly and efficiently, and the researcher was met typically with enthusiastic replies from participants when approached.

Ethical considerations. Ethics approval was obtained from the Royal Roads University Research Ethics Board on 29 February 2016. DND ethics approval was obtained from the Social Science Research Review Board on 26 May 2016, once revisions were made to the

questions that were permitted to be asked of participants. This will be discussed further in Chapter 5.5. Consent forms were provided to each participant before the interview; all participants consented to being interviewed and having the interview digitally recorded. This study was distinct from the researcher's official business duties as a member of the CAF. The researcher identified himself as a member of the CAF to all participants during the request for an interview. These factors reduced any work-related conflict of interest or power imbalances.

Data was maintained in a manner to ensure confidentiality was preserved. Digital audio files and their associated transcripts are maintained on a personally-owned password-protected external hard drive that was only accessible to the researcher, and thesis supervisor upon request. Digital audio files and their associated transcripts will be destroyed in December 2016, once the research is completed. To maintain anonymity, participants were assigned an alphabetic participant code for use in this thesis. A master list of participant codes is maintained by the researcher on a password-protected external hard drive that is only be accessible to the researcher, and thesis supervisor. Close attention was provided to ensure that a description of the participant's title or position did not divulge the participant's identity.

Data collection. Although the subject of the research was focused on CFS Alert, located on Ellesmere Island, Nunavut, the primary research occurred in Ottawa, Ontario. Eight participants were interviewed in person. These interviews occurred at National Defence Headquarters in Ottawa, in a private room. Three of those participants were interviewed as a group – all concurred to provide their responses in front of the others. Five telephone interviews were conducted. One interview was conducted by email, due to the participant's schedule. Interviews lasted between 30 and 60 minutes, and were digitally recorded using a Philips Voice Tracer.

Interviews were then transcribed verbatim in order to produce the data. The 14 interviews yielded 68 pages of interview transcription. Transcribing the interview notes had the added benefit of enabling the researcher to study the data from the outset, as Charmaz (1996) recommended to novice researchers (p. 36).

Environmental controls were enacted to ensure interview confidentiality. Interviews conducted face-to-face occurred in a private room in order to eliminate the potential for eavesdropping. For interviews conducted on the phone, the speakerphone function was only used in a private room, to ensure privacy of the interviewee. While the ability to read body language and other non-verbal communication varies depending on the medium of the interview, given the subject matter, the researcher focused more on verbal responses than non-verbal. However, the exception to this was remaining alert for any signs of discomfort experienced by the interviewee. For those interviews conducted on the phone, the participant was reminded that if they were not comfortable at any point, the interview would be suspended without any repercussions. No discomfort was experienced by any participant.

3.5 Data Analysis

Analytical approach. This research followed an applied thematic analysis approach for analysis of the data. Applied thematic analysis was an appropriate analytical approach for this research, as it seeks to enable inductive analyses, “which primarily have a descriptive and exploratory orientation” (Guest, MacQueen, & Namey, 2012, p. 6). The foundational approach of this research was exploratory in orientation, thereby making applied thematic analysis an appropriate approach for my qualitative research. Applied thematic analysis is defined as:

A rigorous, yet inductive, set of procedures designed to identify and examine themes from textual data in a way that is transparent and credible... its primary concern is with

presenting the stories and experiences voiced by study participants as accurately and comprehensively as possible... Applied thematic analysis as we define it comprises a bit of everything—grounded theory, positivism, interpretivism, and phenomenology—synthesized into one methodological framework. (Guest, MacQueen, & Namey, 2012, pp. 15-16)

Applied thematic analysis was well suited for the intention of this research, which aimed to inform decision-makers and policy-makers within the CAF and DND of relevant themes to core business – namely exercising sovereignty in the Arctic. Finally, both semi-structured interviews, and their subsequent transcribed verbatim notes, were appropriate data collection methods to use with applied thematic analysis (Guest, MacQueen, & Namey, 2012, p. 9).

Throughout the iterative process of analysis, researcher interpretation was an important component. This is consistent with the approaches of applied thematic analysis, which are described as:

Thematic analyses... require more involvement and interpretation from the researcher. Thematic analyses move beyond counting explicit words or phrases and focus on identifying and describing both implicit and explicit ideas within the data, that is, themes. Codes are then typically developed to represent the identified themes and applied or linked to raw data as summary markers for later analysis. (Guest, MacQueen, & Namey, 2012, p. 10)

Applied thematic analysis therefore provided the researcher a degree of latitude to interpret the data. The defence community and military often have unique jargon that is difficult to interpret. Interpretation allowed the researcher to articulate concepts in common language. For example,

multiple different words were used by participants to describe signals intelligence; however, the researcher interpreted and ascribed those different words to mean signals intelligence.

Coding. The data – transcribed interviews – were analyzed and coded in accordance with the procedures articulated by Guest, MacQueen, and Namey (2012) for applied thematic analysis. Underpinning the approach of applied thematic analysis is the development of themes and codes, which emerge from the data. This study used the definition of theme and code articulated by Guest, MacQueen, and Namey (2012). Theme is defined as, “a unit of meaning that is observed (noticed) in the data by a reader of the text” (p. 50). Code is defined as, “a textual description of the semantic boundaries of a theme or a component of a theme” (p. 50). Applied thematic analysis uses a top-down approach, where themes emerge from the data, which is then supported by specific codes (pp. 50).

During the coding process, the researcher reviewed the data three times – first after transcribing the interview with initial tags of relevant information; second while conducting initial theme proposal development in accordance with the study’s objectives; and third to enable theme refinement and code and definition development (Guest, MacQueen, & Namey, 2012, pp. 53-69). Employing interpretation throughout the coding process enabled the researcher to become familiar with the data, and supported the emergence of themes then specific codes.

A codebook was developed to assist the researcher and enable the coding process. A codebook is defined by Guest, MacQueen, and Namey (2012) as, “structured compendium of codes that includes a description of how the codes are related to each other” (p. 50). This codebook was an electronic word document, which combined themes, codes, definitions, and relevant quotes. This codebook supports what Davis (2010) called a “case study database”, which was described as, “a primary method for organizing and warehousing case study data and

analyses” (p. 80). Literature points to the advantages of using a database (or codebook) as a means to improve the reliability of the case study by tracking and organizing key documents, notes, and narratives. Database software was not used, as this kept the researcher close to the data (Baxter & Jack, 2008, p. 554). Saldana (2011) called this closeness to the data, “data intimacy,” which allows the researcher to “gain intimate familiarity with its contents and begin to notice significant details as well as make new insights about their meanings” (p. 95).

Rigor and trustworthiness. In order to achieve trustworthiness in the case study, the researcher employed a process of member-checking. As noted by Baxter and Jack (2008), “participants have the opportunity to discuss and clarify the interpretation, and contribute new or additional perspectives on the issue under study” (p. 556). For example, new themes or ideas that emerged from the interviews were presented as prompts in subsequent interviews to other participants, and their perspectives were articulated in the findings. This provided a measure of balance to the data collection. As an additional best-practice identified by Baxter and Jack (2008), the researcher also ensured through supervision and mentorship that, “the research question is clearly written...and the question is substantiated” (p. 556).

Chapter 4: Findings

This chapter outlines the findings from the 14 semi-structured interviews. Two central objectives were sought through the research. The first objective was to understand from participants how CFS Alert currently exercises sovereignty. The second objective was to understand from participants if and how CFS Alert's mandate can be expanded and augmented, to ensure human security.

4.1 Examining how CFS Alert currently exercises sovereignty

The first research objective was to understand from participants how CFS Alert currently exercises sovereignty. The following two interview questions were central to gaining this understanding: What are the current ways CFS Alert exercises sovereignty? Which activities were most important to contributing to the overall mandate of CFS Alert in exercising sovereignty, and why? It was anticipated that findings of how CFS Alert exercises sovereignty would illustrate existing ways that it enables human security. This section summarizes the findings from participants to these questions. A graphical summary of the findings is presented below.



Figure 1: Ways that CFS Alert currently exercises sovereignty (derived from the interview data in this research).

Presence (as it relates to sovereignty) was the central theme of the question of how CFS Alert currently exercises sovereignty, as each participant identified that as the overarching theme. *Presence* was defined by participants in a variety of ways, from “it is a place to plant a flag... the northern-most base in the world” (Participant H), to “Alert... is a very important piece to sovereignty... it’s our presence there that is important” (Participant C). For this research, *presence* is defined by the researcher as the permanent occupation of CFS Alert by CAF and DND personnel. The theme of *presence* was further divided into the following seven components (codes): signals intelligence, force projection, support to operations, episodic search and rescue, stewardship, science, and international cooperation. Each component will be examined further.

Signals intelligence. Signals intelligence (SIGINT) is intelligence produced by exploiting foreign communications systems (people talking to one another) and non-communications emitters (such as radars) (Joint Chiefs of Staff, 2013). SIGINT can provide valuable intelligence about the capabilities and intention of hostile forces. SIGINT can also be leveraged to help with search and rescue. Colonel Steve Moritsugu, then commander of the group responsible for SIGINT collection in the CAF – the Canadian Forces Information Operations Group – described one example of how SIGINT can be used to help with search and rescue:

When tasked for search and rescue, the three stations can search for high-frequency radio signals, which come from the types of equipment that airplanes and ships normally use for long-range communications, and determine their direction of origin. The intersection of the three lines of bearing from the three stations will give you a good idea of the location of that transmission. (NDDN047, 2015)

Colonel Moritsugu's testimony demonstrates a connection between military intelligence collection and contributions to human security by enabling personal security of Arctic residents by helping with search and rescue efforts. CFS Alert is a site from which the CAF collect foreign signals intelligence, foreign signals of interest, in support of Canadian military operations and Government of Canada foreign policy (NDDN047, 2015). The collection of foreign signals intelligence is one of CFS Alert's three mandates – the other two being science and sovereignty – and is considered its primary mission (Royal Canadian Air Force, 2014).

Although questions were not directly asked about SIGINT collection at CFS Alert, 13 participants spoke in some direct or indirect nature about SIGINT and its importance toward exercising sovereignty. As noted by Colonel Moritsugu, the SIGINT collection from CFS Alert

“contributes to the defence of North America by providing an important intelligence input to the CAF and to our binational North American Aerospace Defense Command” (NDDN047, 2015).

The importance of SIGINT collection was reaffirmed by participants. For example, “The ability to do [SIGINT] is what makes Alert so important. We are providing information to the international community. I think we do a damn good job up there” (Participant M).

Additionally, the importance of SIGINT collection to Canada’s strategic intelligence partners was noted as, “SIGINT is the most important aspect of the place. It is our quid pro quo with our five eyes partners” (Participant K). The “five eyes” partners refers to an intelligence-sharing alliance between Australia, Canada, Great Britain, New Zealand, and the United States. Finally, another participant remarked, “I think because we have a presence there – a physical presence – coupled with the mandate of [SIGINT] – I think that is the most important role” (Participant A).

Force projection. Force projection is the, “deployment or posturing of military forces to influence a situation” (Termium Plus, 2011). As CFS Alert is under command of the Royal Canadian Air Force, it is useful to note that “air power facilitates the projection of military power where and when needed, [and is] uninhibited by natural geographic barriers” (Canadian Armed Forces, 2010).

Participants noted the ability to reach CFS Alert – the most northerly inhabited location in the world – through the deployment forces, and sustain the station, as exercising sovereignty through a demonstration of presence and capability. One participant remarked that in their view, presence was articulated through the weekly sustainment flight to CFS Alert. “It was projecting power to the high Arctic every week, or the ability to do so. I think it goes back to being there and having presence on the ground, and supporting it” (Participant L). Another participant noted:

We had CC-177s and CC-130Js coming into the station roughly every four to six hours, twenty-four hours a day, for two and a half weeks during Operation BOX TOP. The mission itself is really aimed at replenishing the station, but it also demonstrates our ability to provide that level of sustainment and that level of cargo transport to such an isolated location. In my view, anyone that wants to claim sovereignty over something, you have to be able to get stuff in and out, otherwise, whatever you put there isn't going to last very long. (Participant E)

The ability to fly supplies to an isolated Arctic location as demonstrated at CFS Alert yields potential for enabling human security. For example, food and water could be resupplied to Arctic communities experiencing food shortages and threats to food security. Although not mentioned by participants, force projection has the potential to enable human security using military means.

Other participants tied the force projection capabilities to larger components of strategy within the Arctic. For example, “when we talk about sovereignty, people often see this from a security lens, but it's also important to see sovereignty as the ability of the government, and Canada in general, to go somewhere on your territory and undertake some activities” (Participant A). Another participant remarked the reach that Canada has in projecting to CFS Alert. “[Alert is] unique that it's a geostrategic location in the north, and it provides us with that reach to the top that we wouldn't have without it” (Participant C).

Support to operations. Support to operations is defined by the researcher as the enabling support CFS Alert provides to named and non-named CAF operations in the Arctic, and support to international militaries. This support is primarily logistical in nature, such as the provision of

food, fuel, and bed spaces. Operations are defined as, “the employment of an element or elements of the CAF to perform a specific mission” (Canadian Armed Forces, 2008).

As part of the *Canada First Defence Strategy*, the CAF are tasked to conduct operations throughout the Arctic (Department of National Defence, 2008). CFS Alert plays primarily a supporting role to many of the Arctic operations, primarily through logistical support. “We basically would just be a place where [the Canadian Rangers] would stage out of [and operate from], and we’d support them when they were on the station” (Participant I). Another participant explained the support provided by CFS Alert to international soldiers: “Two British soldiers from the Gurkha Regiment trekked up to Alert ... [as] an anniversary of the Gurkha’s service in the British Forces. We were a staging point for the Gurkhas. It showed we owned the land – we helped them plan their expedition, resupply them, and hosted them for days at Alert” (Participant N).

Arctic operations are a tangible demonstration of the CAF and DND exercising sovereignty in the Arctic while collaborating with whole of government partners. CFS Alert provides enabling logistical support to others to help exercise sovereignty in the Arctic.

Episodic search and rescue. Episodic search and rescue is defined by the researcher as CFS Alert’s use as a staging location (potential or real) on an ad-hoc basis for seasonal search and rescue in the High Arctic. It is a contingency location to base aircraft and search and rescue technicians, if required. One participant remarked:

[CFS Alert is] a potential forward operating base that can be used for search and rescue, and has been identified as a potential hub for leapfrogging assets to conduct rescues on the ice for various adventurers and other scientific missions that go out on the ice, where from a Canadian [search and rescue] perspective, there have been potential dangers,

where those out on the ice – Canadian or foreign – may request assistance. So, as part of pre-planning that was conducted, CFS Alert was looked at to be a staging and refueling area. It has been on an ad-hoc basis at present. (Participant F)

Episodic search and rescue was considered a controversial aspect of presence. One participant did not view search and rescue as exercising sovereignty, while two other participants were hesitant to classify CFS Alert as supporting episodic search and rescue from a resource mandate and resource perspective.

In spite of the contention related to its inclusion as a function of exercising sovereignty, the researcher determined that episodic search and rescue remains a relevant component of sovereignty given CFS Alert's current identification as a potential search and rescue hub on an ad-hoc basis. Search and rescue is an important contributor to human security, by enabling personal security by enhancing survivability. Being poised to conduct search and rescue relates to the larger sovereignty component of effective governance, with benefits of enabling human security, which is why search and rescue has been included.

Stewardship. Stewardship of the land involves two key objectives: conserving the existing habitat, and undertaking reclamation efforts to improve the environment at CFS Alert, in order to preserve, and promote a healthy and vibrant Arctic land, sea, and air. Canada's Arctic Foreign Policy noted that exercising sovereignty in the Arctic includes "responsible stewardship" (Department of Foreign Affairs, Trade, and Development Canada, 2010). Given the occupation of the land on north-eastern Ellesmere Island by CFS Alert for more than 60 years, the effective stewardship of that land contributes to sovereignty through effective governance. Although not identified by all participants as a component of sovereignty, stewardship is an effective component of presence and exercising sovereignty and human security. Although CFS Alert is

removed from the indigenous populations, techniques and technologies developed could be employed in other locations where the CAF operates within the Arctic, and shared with indigenous populations to further enhance environmental security.

One participant with an extended exposure to CFS Alert noted:

When I was first there, the road was marked by big barrels, from which all the diesel had originally been brought in. Every road was lined with these barrels – so a few years ago they realized this probably isn't that good for the environment, so they collected them, and crushed them, and returned them south for recycling. So there has been a lot of work gone into [CFS Alert] to make it a sustainable site. In many ways, that is part of our contribution to improving people's abilities to live in the north – those evolutions in how we manage the property. (Participant K)

This view was reinforced by another participant:

[The environmental piece] – I think that speaks to sovereignty as well, because we were up there cleaning up our own mess. We had oil spills from years gone by, and [an environmental team] had brought in some magic microbes to go in, and they fed off of the oil or the fuel that was in the soil. I've heard recently that it was a huge success, and the soil is now clean...the ability to do it, and actually do it, to me that links into sovereignty. (Participant L)

The same participant noted that sewage system improvements were upgraded at CFS Alert, with a view to ensure water returned to the Lincoln Sea was clean. "If this thing worked in Alert, we could expand this to other communities to ensure the run-off waste water was filtered naturally before hitting the arctic waters" (Participant L).

Effective stewardship of the land is an important component of sovereignty. Griffiths (2011) remarked the need for Canada to show leadership in actions toward stewardship of the Arctic (p. 211). CFS Alert's stewardship is an important component of this leadership.

Science. Science is defined by the researcher as CFS Alert's support to scientific experimentation, as well as research and development. Scientific research is currently undertaken primarily through Environment Canada's ongoing climate research conducted through the Dr. Neil Trivett Global Atmosphere Watch Observatory and Upper Air Weather Station (Royal Canadian Air Force, 2014). Research and development are conveyed through Defence Research and Development Canada's long-standing partnership with CFS Alert (Defence Research and Development Canada, 2015).

The majority of participants did not initially mention science as an aspect of sovereignty. However, when prompted to consider science and other aspects of sovereignty, all but three participants considered science as an expression of sovereignty by the Government of Canada. It should be noted that the Government of Canada considers Arctic science research and research as an expression of exercising sovereignty in the Arctic (Department of Foreign Affairs, Trade, and Development Canada, 2010, p. 8).

The scientific discoveries facilitated through CFS Alert have broader application for the Arctic and territories. For example, in a recently completed sleep study using personnel at CFS Alert, new light visors were found to be an effective countermeasure to the detrimental effects of prolonged periods of darkness experienced in the Arctic. These devices have not only military applications, but may also, "help people be more functional in extreme climates" (Beeby, 2015; Canadian Broadcasting Corporation, 2014). These discoveries demonstrate how experimentation conducted at CFS Alert could contribute to enhancing the health security of Arctic residents.

One participant described the scientific footprint and involvement at CFS Alert, and articulated that scientists are part of the CFS Alert team:

We had the constant presence of Environment Canada. You have the Global Atmospheric Watch, which is all, the personnel involved in that are supported by the Station. We also have Environment Canada participating in the global climate change experiments – so twice a day they launch a balloon into the atmosphere, and they measure any number of different things, and all that information gets shared with the environmental agencies around the world. And again, they do that every day, and the Station supports them every day – they live on station, they share our kitchen, they share our facilities – they’re as much a part of the Alert team as anyone else on the station. Having more than one government entity there, if you will, is another aspect of exercising sovereignty, and it’s a permanent presence – they are there year-round, just like the rest of the station. (Participant E)

CFS Alert provides an ongoing support to scientific research and development that directly contributes to the Government of Canada’s ambitions for leading in Arctic research, and thereby exercising sovereignty and contributing to the health security of Arctic residents.

International cooperation. International cooperation is the exchange of knowledge, skills, information, and/or goods, which stem from CFS Alert. In practical terms, this includes hosting exchanges with other countries’ militaries, or imparting skills and techniques honed at CFS Alert to another country.

One participant provided a recent example of international cooperation with Denmark, in light of contracting challenges owing to the situation in Ukraine:

[The] Danes resupply Station Nord at the same time as [Operation] BOX TOP. The way the Danes resupply [Station Nord] is to contract through the Ukrainian Air Force with the [Russian-designed cargo aircraft] IL-76s to run [supplies] back and forth. With the situation in Ukraine, there is a potential disruption to re-supply. [The Danes] started to talk with Canada a few years ago, [to see if] the CAF could help with the resupply... We did a dry-goods resupply [with a CC-177 to Station Nord], which demonstrated our ability to operate in an even more austere airfield than Alert. [The re-supply] saved the Danes a few [re-supply flights] of their own resupply. (Participant K)

Another participant provided an example that articulated an exchange of military personnel with an allied country (Participant I).

International cooperation is viewed as an exercising of sovereignty, because it indicates a level of skill and ability that can be shared with others. Thereby, international cooperation reinforces international recognition of Canada's abilities to exercise sovereignty, with a resulting increase in credibility for the Government of Canada.

Conclusion. The mandate of CFS Alert includes sovereignty. The data obtained from participants with lived experience at CFS Alert and the Arctic has helped to define seven current ways that CFS Alert currently exercises sovereignty and the implicit support to human security. All respondents agreed that the strength of CFS Alert from a sovereignty perspective was derived from its presence. This research explored that theme at greater length.

4.2 Examining how CFS Alert can further exercise sovereignty to ensure human security

The second research requirement was to explore from participants if and how CFS Alert's mandate can be expanded and augmented. The following two questions were central to gaining this understanding: What are realistic and tangible opportunities to improve CFS Alert's

ability to exercise sovereignty? What intergovernmental opportunities could further contribute to exercising sovereignty at CFS Alert? This section summarizes the findings from participants to these questions. A graphical summary of the findings is presented below.

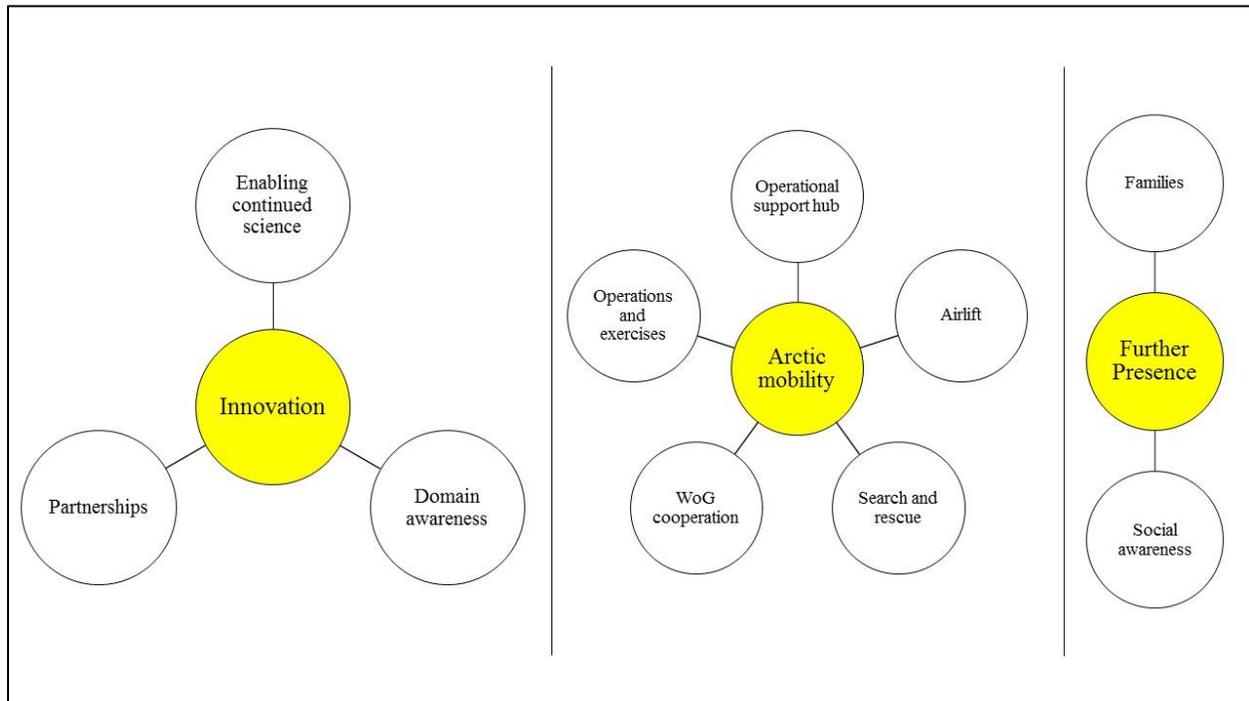


Figure 2: Ways that CFS Alert can further exercise sovereignty to ensure human security (derived from the interview data in this research).

Three themes emerged from the data that articulate tangible ways CFS Alert can further exercise sovereignty and ensure human security – *innovation*, *Arctic mobility*, and *further presence*. These terms were interpreted from the data, and were not identified in name by the participants in the same manner as *presence* in the previous section. *Innovation* is broadly defined in this research as the process of creating new methods, techniques, or procedures. *Arctic mobility* is defined by this researcher as the ability to project forces across the land, sea, and air, beyond the station at CFS Alert. *Further presence* refers to additional opportunities that people may go to CFS Alert. An implied assumption in the responses is that CFS Alert’s

manning levels will not be reduced. Each theme has associated components (codes), which are as follows: *innovation* – enabling continued science, domain awareness, and partnerships; *Arctic mobility* – operational support hub, airlift, search and rescue, whole-of-government cooperation, and operations and exercises; *further presence* – families and social awareness. Each component will be examined further.

Enabling continued science. Enabling continued science is an expression to continue and enhance CFS Alert’s ability to support scientific experimentation, enable research and development, and support testing technologies. CFS Alert’s unique geographic location provides access to Arctic atmospheric conditions. CFS Alert also has distinctive access to the High Arctic tundra, which should continue to be used for research and development of an array of technologies which have both civilian and military applications.

Eleven participants indicated that science represented a tangible manner to further exercise sovereignty, which yields credit to Canada. The common response from participants was “to do more science.” It was interpreted from these responses that this includes increasing the amount of personnel who use CFS Alert for scientific, research and development, and testing purposes, and also increasing the breadth and depth of experimentation. Cooperation with other departments and agencies was also expressed by all participants.

Noting the unique placement of CFS Alert in the High Arctic, one participant remarked that, “having something so close to the North Pole ... I would expect it has a unique value in terms of environmental science that maybe other places don’t have” (Participant D). One participant encouraged CFS Alert to be considered for future scientific research, owing to its unique Arctic location, which may offer additional benefits than can be obtained at the Canadian

High Arctic Research Station in Cambridge Bay (scheduled to be opened in 2017) (Indigenous and Northern Affairs Canada, 2016):

There are two things to bear in mind – there are two perspectives – one is institutional (bureaucratic), and the other is a substantive perspective. From a bureaucratic perspective, Polar Knowledge [Canada] will be interested in Cambridge Bay, because that is what they do, and that is what they're interested in. However, from a substantive point of view, there are some things that can be done in Cambridge Bay, and some things that cannot be done in Cambridge Bay, and might be done at Alert. (Participant G)

Another participant noted an opportunity to expand the Environment and Climate Change Canada presence at CFS Alert, in order to further ice research:

One thing is that there should be a permanent presence up there under Environment [and Climate Change] Canada, is Canadian Ice Services. Right now, they're relying strictly on satellite, but if they were [at CFS Alert]... and could do some research out on the land... [and] have a location where they can permanently go...that would be ideal. (Participant F)

It is noteworthy that, when asked how CFS Alert currently exercises sovereignty, science was a response that required prompting from participants. Yet, when asked for ways to further exercise sovereignty, science was a prominent response. This suggests that science is not readily thought of by CAF and DND members as exercising sovereignty, yet is nonetheless recognized for its importance and positive contributions to human security.

Domain Awareness. Domain awareness is the effective and holistic understanding of anything within the air, maritime, and land domain, which could impact the security, safety, economy, or environment, within the High Arctic. This definition is modified from Transport

Canada's characterization of *maritime domain awareness* (Transport Canada, 2012), in order to align with the monitoring objectives espoused in the *Canada First Defence Strategy* (Department of National Defence, 2008). Domain awareness requires close collaboration with other government departments. Currently, signals intelligence collection is CFS Alert's principal domain awareness contribution.

Participant discussion focussed on integrating and enabling future collection platforms or communication systems through use of CFS Alert. Examples might include, testing any future Arctic unmanned aerial vehicles, testing space-to-ground links for satellite coverage over the Arctic, underwater surveillance technologies, or working with Transport Canada to stage overflights from Alert to conduct airborne surveillance of the maritime approaches (Participants A, J, and K).

Technological advancements that contribute to domain awareness are an important aspect of the role the CAF plays in exercising sovereignty, through monitoring the Arctic territory (Canadian Armed Forces, 2008; Department of Foreign Affairs, Trade, and Development Canada, 2010). The improved domain awareness has the potential to empower whole of government security partners to enable the personal security of Arctic residents through early detection of incoming threats. CFS Alert is uniquely placed to field technological trials.

Partnerships. Partnerships is the mutually-beneficial arrangement between CFS Alert and another organization or entity – be it civilian and or military. This includes partnerships with other governmental departments, as well as private partnerships such as universities and corporations.

Participants recognized the long-term impact of climate change, which will increase the requirement for cooperation in the High Arctic. Broad espousals of partnership development

with Canadian government departments and territorial governments were articulated in interviews. A graphical representation of potential partnerships over the coming years is shown below (refer to the abbreviations section as required).

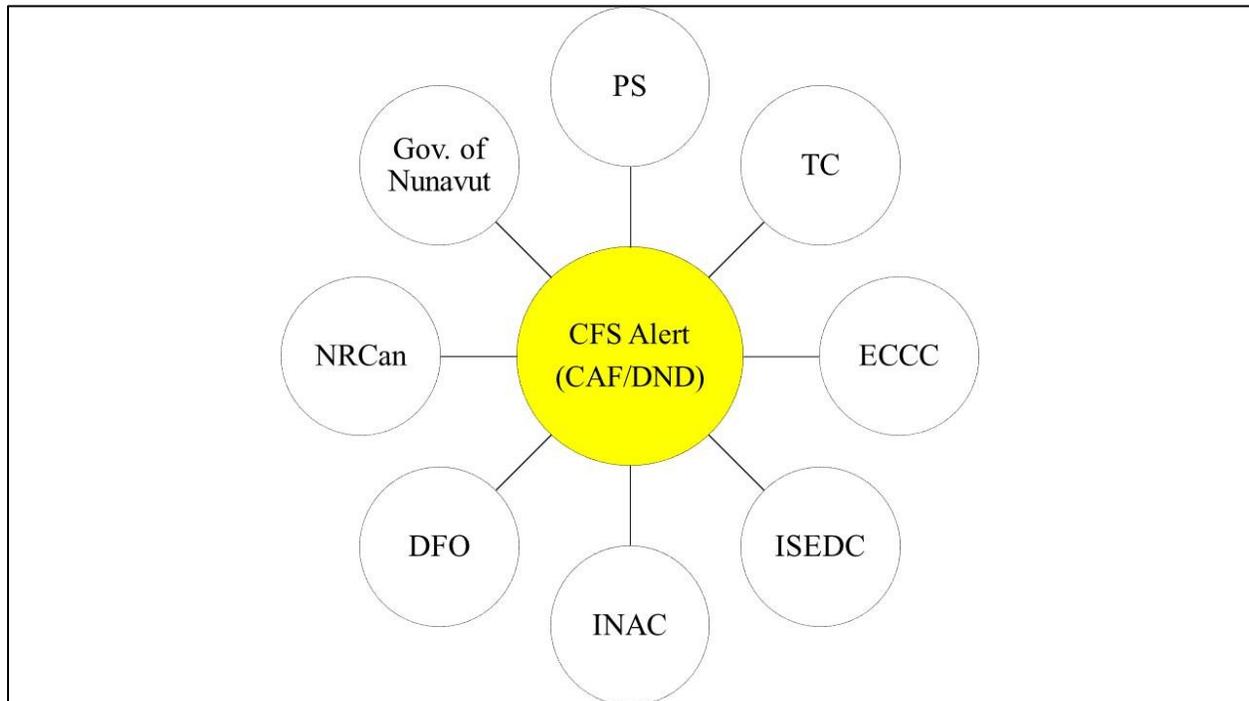


Figure 3: Future inter-governmental cooperation opportunities, as suggested by interview participants.

While specific partnership outcomes are not clear today, there is recognition of the requirement for future collaboration. These types of partnerships reinforce governance in the Arctic, which underpins sovereignty, and likely contribute to human security. As one participant articulated, “any Government of Canada activity based [at CFS Alert] reinforces the whole concept of governance within the Arctic, so it winds up not only being presence, but governance” (Participant F).

Operational support hub. An operational support hub is defined as, “pre-negotiated arrangements to facilitate the movement of people, materiel, equipment and supplies in far-

reaching locations” (Department of National Defence, 2016). This is a modified definition used by the CAF, which is a similar definition, except that the arrangements are between countries. Essentially, an operational support hub is the receiving and staging location to enable follow-on operations.

Four participants articulated that in the future, CFS Alert could become an operational support hub to facilitate rapid deployment to the High Arctic, to enable follow-on operations beyond the immediate vicinity of the station. Greater “operationalization” of CFS Alert would give the CAF the ability to quickly reach and conduct operations within the High Arctic. Currently, force projection occurs to CFS Alert and sustains the station, but there is limited movement beyond the station.

One participant provided a long-term view where CFS Alert’s importance is enhanced, with the potential for a more operational posture:

I think I can really see this role taking on more importance and possibly expanding, in terms of maybe a more operational role, or more of a base from which you can stage operations, so I think this is something that policy makers and decision-makers will need to take a look at – maybe not next year, but as we look 5 to 10 years down the road, and we see the Arctic continue to change (and it seems every year that the changes to the climate are more dramatic) than previous years, and if this trend continues, in 20 years it is going to be very different. (Participant A)

It could be envisaged that CFS Alert could be used as an operational support hub in times of crisis, whereby other whole of government partners could move into the Arctic region and rapidly respond to the needs of Arctic residents.

The CAF is reported to be exploring and planning for a series of Northern Operations Hubs. These hubs will provide a, “network of sites throughout the Arctic in order to stockpile equipment if needed and move troops and gear quickly into the region in case of emergency” (Pugliese, 2014). The government is currently considering hubs in Iqaluit, Yellowknife, Resolute Bay, and Inuvik (Pugliese, 2014). One participant remarked that CFS Alert’s current infrastructure would have some capacity to surge additional forces to the station for a short period of time (Participant J). Given CFS Alert’s infrastructure, and continuous occupation by CAF personnel, consideration could be given to incorporating CFS Alert as an operational support hub for the Arctic. This increased mobility in the High Arctic would support further operations in the Arctic, thus reinforcing the exercising of sovereignty, and contributing to human security in times of crisis.

Airlift. Airlift refers to the continued ability for CAF’s aircraft to move personnel and material to, around, and beyond CFS Alert, which combines strategic and tactical airlift – meaning both long-haul and short-haul aircraft. Currently the CC-177 Globemaster III (strategic aircraft), CC-130 Hercules (tactical airlift), CH-146 Griffon (utility helicopter), and CH-147 Chinook (medium lift helicopter) are capable of flying to, and operating around, CFS Alert.

Airlift capability and sustainability requires developing expertise at operating in austere Arctic environments. It also considers the seasonal employment of airlift (such as CH-146 Griffons) for increased mobility across the Arctic tundra, to increase the range of forces operating from CFS Alert. One participant suggested:

Putting some Griffons [utility helicopter] in every once and while... [for increased mobility over the tundra]... have it there during the Polar Expedition season. You could put in a temporary hangar pretty quick, to give a bit of shelter, and then you’d have it

available. From there, you could probably put some fuel depots closer to where the folks depart from their polar treks, but, it could work. (Participant L)

Proven airlift in the High Arctic can be “exported” to other locations in the Canadian Arctic. In particular, helicopters provide mobility that can be used to move people and materials to austere and remote locations. There are also environmental stewardship potentials to recover old storage tanks, as demonstrated by a CH-147 Chinook during Operation NEVUS in 2015 (Canadian Armed Forces, 2015). Expanding this last point further, environmental security could be enhanced through focused environmental clean-up efforts with locals and whole of government partners, by temporarily staging and using helicopters within Arctic communities that are besieged by waste.

Search and rescue. Search and rescue refers to the future development and potential use of CFS Alert as a search and rescue aeronautical hub. The CAF has the national lead for aeronautical search and rescue, and covers the entirety of Canada through three principal hubs in Victoria, British Columbia; Trenton, Ontario; and Halifax, Nova Scotia.

With climate change opening up more access to the Arctic region, two participants anticipated a future requirement to pre-position more search and rescue assets in the Arctic. One participant suggested developing CFS Alert as a coordination centre for Arctic search and rescue:

In the past, [the use of CFS Alert for search and rescue] has been on an ad hoc basis, but as the Arctic continues to be accessible, for tourism and for shipping, because of its position as far north as it is, it’s in an ideal location to have a forward operating location, or at least a logistics support base. But, if it were manned on a permanent basis, as opposed to an ad hoc basis, it underscores that the government is there. And, it reaches

beyond Alert – it winds up giving that Arctic presence to the entire Arctic Archipelago.

(Participant F)

Effective search and rescue is considered a requirement of exercising sovereignty in the Arctic – a territory so vast, that future developments may require northerly-positioned search and rescue assets. CFS Alert offers one viable location for consideration and implications to human security as it relates to military and civilians was previously discussed.

Whole-of-government cooperation. Whole-of-government cooperation refers to working with other Canadian government departments to increase ways to move and operate in the High Arctic.

Three participants indicated possible future cooperation with Transport Canada and the Department of Fisheries and Oceans to increase the Canadian government's reach within the maritime domain. Examples included conducting icebreaking operations around Ellesmere Island and to CFS Alert, and also potentially barging supplies and fuel to CFS Alert by sea instead of airlift. As expanded by one participant:

The Department of Fisheries and Oceans, and Canadian Coast Guard: [Could they] look at barging supplies to Alert? The level of ice in Alert Bay is dependent on wind conditions. Could Alert be resupplied without having to use heavily taxed aircraft? The Department of Fisheries and Oceans assists northern communities with barge resupplying. [With] more sea traffic, the Canadian Coast guard will have to be up [in the Arctic] more. (Participant K)

Another participant commented:

It would be interesting if you could get a Coast Guard and some sort of tanker to offload fuel into Alert one time, because in my experience it looked like there was enough of a

passage along the coast, so you could probably [get] a ship up there with some fuel – just a different way to resupply Alert. (Participant L)

Whole-of-government cooperation remains a forward-looking prospect, which is rooted in anticipated changes to the Arctic sea ice. The potential benefits of increased mobility through cooperation with other government departments in the Arctic would further enhance CFS Alert and the Government of Canada's ability to exercise sovereignty in the Arctic.

Operations and exercises. Operations and exercises refers to an increased use of CFS Alert to enable and support named and non-named CAF operations in the Arctic, and provide support to international militaries. This support is anticipated in the realm of logistical support (as it currently does), but with a possible view to support more operations and exercises. Operations are defined as, “the employment of an element or elements of the CAF to perform a specific mission” (Canadian Armed Forces, 2008). Exercises are defined for this research as the employment of military forces for the purposes of training.

One participant suggested CFS Alert be involved with more Arctic exercises, as a way to obtain international recognition. “Get more involvement with Arctic exercises. This will lead to international awareness that we're doing this. Internationally, it will be seen that we're focusing on the north” (Participant M). Another participant with experience at CFS Alert suggested specific operations and exercises for further use of CFS Alert:

Operation NUNALIVUT could use Alert as a staging area of an exercise area. I believe we can write scenarios to include Alert for an Army company size [approximately 140 personnel] to conduct exercises – [perhaps an airborne drop] onto the runway. [This could also involve] carrying out [more] patrols in the north with the Rangers. (Participant N)

Another participant suggested combining efforts with the new CAF Arctic Training Centre:

Serve as a seasonal training site for the Arctic Response Company Groups. Right now they've got Resolute Bay, but if some of the activities can be conducted up [at CFS Alert], whereas its cold, and everybody has to go for [Operation] NUNALIVUT, in the middle of the early spring, you could go up and do the equivalent thing in the summer up at Alert, when perhaps more people are available. It gives you another option.

(Participant F)

CFS Alert could be part of a larger high Arctic whole of government exercise with a focus on human security challenges. For example, this could include the rapid re-supply of an isolated community facing food shortages or the partial evacuation of a town to receive more advanced medical care should a health or environmental threat develop.

It should be noted that participants with command experience at CFS Alert were unequivocal in noting that increasing personnel at CFS Alert imposes an additional financial burden on the station, so fulsome resourcing will be required. Overall, participants remarked that increasing CFS Alert's support to and participation in Arctic operations and exercises provide another option for the CAF to exercise sovereignty.

Families. Families refers to exposing CFS Alert to the families of CAF personnel serving at CFS Alert by bringing those families to the station, for a visit or possibly a longer-term arrangement.

Two participants espoused the idea of bringing families to CFS Alert. The exposure of families to CFS Alert could occur in different ways, including visits, and accompanying the service personnel to CFS Alert during their deployment. One participant offered that, "if [personnel] go up there with their families, it is much more of a permanent presence than people

stationed there for six months... It's better for morale, but it also has the added benefit of community, and by community – presence” (Participant F). Additionally, Participant F noted the Russians have accommodations for the families [of scientists] on Kotelny Island – a Russian Arctic island research facility – for up to one year, thereby increasing morale and creating a sense of community. However, three participants expressed strong opposition to this proposition, noting the administrative toll this would pose to bring families to the Arctic, and the potential liabilities involved (Participants H, I, and J).

The researcher included families as a manner to increase the exercising of sovereignty at CFS Alert, as it enables cultural awareness of sovereignty through exposure. Exposure to the Arctic is a unique opportunity, and would give families (and thereby their network of contacts through stories after the fact) the occasion to be part of the presence that exists at CFS Alert. Another option to increase cultural awareness, and thus promote community security for indigenous populations in the Arctic would be to establish programs for families to spend time living with Inuit populations. This option may be more economical and culturally insightful than necessarily having families travel all the way to Alert.

Social awareness. Social awareness is the exposure of southern Canadians to Arctic Canada, through lived experiences gained at CFS Alert. Social awareness combines bringing Canadians to CFS Alert and informing Canadians more about CFS Alert.

One participant articulated that exposing southern Canadians to CFS Alert is one manner to increase Canadians' knowledge of their Arctic. The participant proposed conducting regular visits to CFS Alert:

I wouldn't say it is maybe establishing a regular program, but there are re-supply missions, and there are various missions that fly up there for a variety of reasons, and on

the occasions where it is permitted to do so, to haul a selected group of maybe even just Parliamentarians – start with them, or senators – to Alert, to experience that little bit. It's sort of a chicken and an egg argument – are you exercising sovereignty and increasing domain awareness, or are you increasing domain awareness and thereby exercising sovereignty? It is a mutually reinforcing thing. (Participant G)

Further, the participants suggested that exposing southern Canadians to the Arctic would enable greater credence to the “Canadian narrative” about Canada being an Arctic nation:

Canada has a narrative about the Arctic, which some would argue is not necessarily consistent with what is going on in the Arctic. That being said, we spent a great deal of time and energy ensuring the inhabitants of the Arctic (primarily the Inuit), have access to southern Canada. We spend a lot less time ensuring that southern Canadians have access to the Arctic. And, we lay this off on the fact that it's cheaper to go to Australia than it is to go to Iqaluit. So, all I'm saying is, depending on where you wish to go with this, there is a certain dimension for filling up a plane on a stand-by basis with a selected group of people to go up to Alert, and actually experience the High Arctic for themselves and thereby expand the domain awareness of the Arctic in the south. (Participant G)

Another participant recommended increasing public awareness of the activities of CFS Alert:

We've got to get more people up to [CFS Alert]. We have international pride. Getting the word out that we are there [is important]. [The personnel at CFS Alert] have a lot of pride being there. Tell the public we're here. We don't have to tell them what we're collecting... I think that is part of sovereignty... letting people know we're here, and here's what we're doing. (Participant M)

Through increased social awareness, the presence aspect of CFS Alert can be enhanced to further exercise sovereignty as reinforced by knowledge and lived experiences.

Conclusion. The data obtained from participants with lived experience at CFS Alert and the Arctic has offered ten tangible ways to enhance the ability of sovereignty to be exercised at CFS Alert. Thematically, these ways are considered as, *innovation*, *Arctic mobility*, and *further presence*. A tabular summary of the themes, codes, and their definitions is presented at Appendix B.

Chapter 5: Discussion

The effects of climate change will continue to open access to the Arctic for the foreseeable future. This increased access reinforces the requirement to exercise sovereignty in the Arctic, which in turn enables human security within the region. The CAF is part of a larger assemblage of government departments that conduct operations in the Arctic. The Arctic is a complex environment to operate in, which increases the resource requirements. As an Arctic country, Canadian policymakers and military commanders should continue to look for effective ways to best exercise Arctic sovereignty. This study provided an in-depth understanding of how CFS Alert currently exercises sovereignty, as well as additional ways and means to further exercise sovereignty to ensure human security. This chapter will discuss the findings of this research by revisiting the research questions underpinning the research, articulating the significance of the research, highlighting implications for human security, noting limitations of the findings, and providing recommendations for future research.

5.1 Research questions

This section will discuss the findings of the research in relation to the three research questions that underpinned this thesis from Chapter 1.3.

Primary research question: Does the mandate of CFS Alert need to be expanded and augmented to enable a greater exercising of sovereignty in the Arctic, to ensure human security? From the research, it is concluded that changes to the mandate of CFS Alert are not required to enable a greater exercising sovereignty. Further, this research articulated implications for human security through exercising sovereignty (which will be discussed within the next section). This was affirmed through a sufficient detailing from participants of the current ways that CFS Alert exercises sovereignty. Additionally, it is concluded that there is sufficient latitude within the

existing mandate, which is generally summarized as the big three of, “signals intelligence, sovereignty, and science” (Participant E), for both policymakers and military commanders to further exercise sovereignty with some degree of creativity. Therefore, a change in mandate would have a limited impact, as there is sufficient flexibility in the current mandate.

Further, participants re-iterated the importance of signals intelligence collection as the primary mandate of CFS Alert. There are significant strategic benefits for cooperative ventures with the United States. As noted by Colonel Moritsugu, “the primary mission of Alert is signals intelligence collection. As I said, it is vital because of where it is. It's a unique geographic advantage that we have” (NDDN047, 2015). Therefore, it is inferred from the data that any changes to CFS Alert’s mandate could detract from the primary purpose of signals intelligence collection.

When examined from the lens of both the *Canada First Defence Strategy* and Canada’s Arctic Foreign Policy, it is concluded that a mandate change is not required to further exercise sovereignty at CFS Alert. From the perspective of exercising sovereignty, CFS Alert’s current mandate enables flexibility for the CAF to “conduct daily domestic and continental operations, including in the Arctic,” as called up on in the *Canada First Defence Strategy* (Department of National Defence, 2008, p. 3). This perspective is reaffirmed when viewed from the lens of Canada’s Arctic Foreign Policy (Department of Foreign Affairs, Trade, and Development Canada, 2010).

Based on participant feedback, and in view of foundational direction to the CAF, CFS Alert’s current mandate is broad enough to enable additional sovereignty activities, should the Government of Canada desire.

Secondary research question 1: How can the role of CFS Alert be expanded? The research proposes various tangible and practical ways that a greater exercising of sovereignty can occur at CFS Alert. These measures can occur within the current mandate and role of CFS Alert.

Broadly speaking, two strong recommendations stem from the research to conduct additional sovereignty measures from CFS Alert – enhancing the presence, and operationalizing CFS Alert by conducting more operations, leveraging partnerships, and increasing mobility at and around CFS Alert. Firstly, it is concluded that a strengthened presence could help enhance the exercising of sovereignty. However, participants indicated this strengthened presence would occur best through a whole-of-government framework and the application of additional resources. At the outset, the researcher thought strengthened presence would come from additional permanently-stationed CAF members, but the research from participants did not support that claim. As articulated by one participant, “I think having more people stationed there, I don’t think that would make a big difference – I think where I see the potential overall is the whole issue of attracting more government departments there” (Participant A). Secondly, further operationalizing CFS Alert would enable a greater exercising of sovereignty, but from within the current mandate. For example, adopting CFS Alert as an operational support hub, and including CFS Alert in more northern operations, would raise the operational profile of the station, and thereby further exercise sovereignty.

Therefore, within the current mandate, a number of measures may be undertaken to enhance the exercising of sovereignty at CFS Alert. It is not concluded that the role needs to change, as was posed in the research question.

Secondary research question 2: What are the policy implications of an expanded mandate at CFS Alert? The research concludes that a mandate change is not required to further exercise

sovereignty, so the policy implications are limited. The additional ways and means that Arctic sovereignty could be further exercised at CFS Alert are consistent with approaches in the *Canada First Defence Strategy* and Canada's Arctic Foreign Policy – whole-of-government cooperation between departments underpins the “exercising sovereignty” aspect of sovereignty in the Arctic. While the policy implications that stem from this research are consistent with extant direction, resource requirements were not considered – this will be discussed later in this chapter.

5.2 Implications for human security

Although this research was framed from a state-centric perspective, it nonetheless yielded findings that are relevant for the study of human security in the Arctic. This section will briefly highlight those implications.

Environmental security. Environmental security is defined by the United Nations Development Programme (1994) as reliance on a healthy physical environment, with threats to local and global ecosystems being described as prominent threats (p. 28). This research articulated tangible examples of how environmental stewardship is currently exercised at CFS Alert – such as using the CAF efforts to clean up the Arctic tundra. The ongoing scientific research on climate science, and potential for increased science, innovation, and cooperation at CFS Alert, highlights how environmental improvements uncovered at CFS Alert can be expanded elsewhere in Canada's territories to improve environmental security, such as sewage system improvements for Arctic residents. While critics such as Smith (2010) bemoan military spending in the Arctic, the significance of this research highlights, with tangible examples, a connection between the “stewardship” aspects of sovereignty and environmental security, enabled through a CAF Arctic installation.

Personal security. Personal security is defined by the United Nations Development Programme (1994) as threats stemming from physical violence (p. 30). Although there are limited threats from external actors in the Arctic, the harshness of the terrain across the Arctic poses a serious threat to the physical security of those living and visiting the Arctic. With global warming increasing access to the Arctic, and thereby increasing visitors on land and sea, the requirement for search and rescue across the arctic will likely increase. This research illustrated how CFS Alert is currently considered as a search and rescue staging location, and identified potential future uses of CFS Alert as a search and rescue aeronautical hub in the Arctic. Additionally, the theme of Arctic mobility refers to increasing the ability to manoeuvre in the High Arctic, which leads to the potential to secure individuals from a variety of personal threats. This research identified another correlation between exercising sovereignty in the Arctic, and an enabler for personal security.

Health security. Health security is defined by the United Nations Development Programme as including a variety of threats to health, including disease, parasite, and environmental causes (pp. 27-28). Although not originally included, mental health would likely be a logical inclusion within the term health security. The scientific and research development that occurs at CFS Alert has applications to enable health security. For example, the sleep study that led to the development of light visors for the Arctic, underscores new technology that can assist all living the Arctic to overcome the effects of long periods of darkness, thereby reducing individual mental health challenges. This research provided tangible examples, and highlighted future opportunities, for improving the health security of those living in the Arctic.

5.3 Significance of the findings

Four overarching themes were identified in Chapter 4.1 and 4.2, which identified the ways and means CFS Alert current exercises sovereignty, and identified tangible examples of measures that can enhance the ability of CFS Alert to exercise sovereignty and contribute to human security. This section will articulate the significance of those themes.

Presence. Seven components were defined to convey the ways and means that CFS Alert currently exercises sovereignty in the Arctic. Although new decisions are not required to implement these measures, the significance of these findings relate to enhanced understanding and information gained. There is an opportunity to communicate these findings more broadly to the Canadian public to enhance the public's awareness of CFS Alert. Communicating these examples through stories of actual soldiers, sailors, airmen, airwomen, and civilian contractors, will better inform the public, which in turn could foster a greater sense of pride for both the CAF and the Arctic. Communicating these findings would not be resource-intensive, and could likely be performed from within existing DND Public Affairs programs. This research enabled a dialogue with the CAF and DND about specific ways and means that CFS Alert exercises sovereignty in the Arctic. This research was also significant for drawing out connections between CFS Alert and whole of government partners and moving beyond traditional views of sovereignty to highlight how human security is enabled in the Arctic region. Some of the examples previously mentioned are novel contributions to the field.

Innovation. The findings in this research revealed opportunities for further research, exploration, and examination to realize the three components identified. For example, within the component of "enabling further science," more detailed examination is required to understand potential future scientific, research and development, and technological domains. However,

linking to the component of “partnerships,” there is an opportunity for senior policymakers, senior bureaucrats, and military commanders to bear CFS Alert in mind for potential “science suitors.” With an increased emphasis on climate change with the Government of Canada, CFS Alert represents a unique opportunity for new scientific endeavours. In the same vein as seeking new partnerships, senior policymakers, bureaucrats, and military commanders will likely be required to negotiate memoranda of understanding between the DND and other government departments, to formalize specific exchanges between departments ahead of commencing future work. This research indicated that innovation represents a tangible future opportunity to further exercise sovereignty in the Arctic while contributing to the individual needs of Arctic residents. As mentioned earlier in this paper, the greatest threats to human security in the Arctic are environmental, health and community security—all which are linked through a common cause of climate change. The potential scientific advancement through additional scientific research at CFS Alert could represent a significant contribution between CFS Alert and the Arctic region by addressing key human security challenges.

Arctic mobility. The five recommendations in Chapter 4.2 have their greatest significance in terms of resource allocation, both for CFS Alert and the broader CAF and DND. Most of the former commanding officers of CFS Alert pointed out that increasing the quantity of personnel or equipment at CFS Alert would require a commensurate increase of resources to support them. This consideration must be kept in mind, as CFS Alert is largely isolated, and the real life support component is significant. Recommendations for increasing operations, exercises, and search and rescue assets must be taken into consideration by appropriate military commanders against a number of other competing force generation and force employment demands. However, it is also significant to note that this strategic infrastructure at CFS Alert

currently exists, and provides reach to the High Arctic. In turn, this lessens the requirement to re-create new infrastructure from scratch. If new initiatives are undertaken, a complete understanding is required of the resource requirements and the implications on the remainder of the CAF and DND. New initiatives would not need to be limited to CAF and DND and there is opportunity for involvement of other organizations, and other funding sources to find creative solutions in addressing these concerns. The cross cutting nature of human security challenges is conducive to inter-departmental cooperation and leveraging the CAF arctic mobility can lead to burden sharing for new initiatives. This research articulated a variety of options to enhance mobility in the Arctic, which can be used by policymakers and commanders.

Further presence. This theme was notably controversial by some participants; however, the two components identified represent ways to further increase sovereignty and promote community security. Further resources would be required to examine how specifically to enact each component. For example, in the component of exposing more families to CFS Alert, policy reviews related to CAF postings to isolated locations would likely be required. A more thorough examination of the “time and space” considerations would be required, to specifically identify “how,” “when,” and “for how long,” questions. The component of social awareness bears significance related to policy direction for how much of CFS Alert the CAF and DND are willing to “expose,” noting sensitivities with the station being a signals intelligence collection facility. Reviews of security policies related to CFS Alert, and potential resource requirements would need to be examined further.

This research is also significant for the gaps it filled in the literature. The description of ways and means that CFS Alert currently exercises sovereignty (Chapter 4.1) contradicts Greaves’ (2011) research on human security and the Arctic. Specifically, this research enabled a

greater understanding of how the CAF supports components of human security in the Arctic. This research also filled a literature gap identified by Heide (2012), by providing an in-depth examination of an existing northern military establishment – CFS Alert – with a view of implications for current government Arctic initiatives.

5.4 Limitations of the findings

Bias. Personal biases were mitigated throughout the study. This was achieved primarily by keeping an open-mind regarding feedback received during the interviews, and controlling non-verbal cues and body language in order to present a neutral and open-minded countenance. Two prominent instances of bias were noted by the researcher. First, I did not anticipate as strong of a response to participants articulating science as a prominent sovereignty component. A second instance occurred when I anticipated respondents would advocate for more CAF personnel to be stationed at CFS Alert, which was not true. The controls I employed to mitigate bias were successful, and it is believed that my personal biases did not affect data collection or analysis.

Validity. As detailed by Maxwell (1992), there are inherent challenges to defending against threats of validity in qualitative research. With respect to descriptive validity – the factual account of what participants said – interviews were transcribed as accurately as possible. This was achieved by manually transcribing the interview within a range of one to seven days of the interview, which enhanced accuracy. With respect to interpretative validity – what objects, events, and behaviours mean to participants – it is recognized there may be limitations to how participants recalled events. This was mitigated by binding the case to 2008 and onward, to keep experiences fresh. Additionally, when possible, multiple participants were used to corroborate

information (pp. 285-289). Therefore, while recognizing unique challenges with qualitative research, this research provides a valid account of varied participants' experiences.

Limitations of the study. A limitation with this research was the relatively small number of participants participating in the research. This was attributed to the limited number of participants with specific and recent experience at either CFS Alert or within the Arctic. This limitation was in part mitigated through snowball sampling, which increased participation. Additionally, the decision to limit the participants to those within CAF and DND limited the whole-of-government perspectives obtained in the research. This limitation was chosen in order to firstly achieve a CAF and DND-perspective; it is possible follow-on research could include other government departments with a vested interest in Arctic sovereignty. It should be noted that, due to snowball sampling, one interview was conducted with a Global Affairs Canada member.

Generalizability. As noted in section 3.2, it was anticipated that a limitation would be the generalizability of the findings. While this was true, it remains my conclusion that the outcomes of this research will nonetheless be supportive for policymakers and military commanders, by providing a rich narrative that stems from the unique and lived experiences of individuals (Simons, 2009, p. 166). An area where generalizability is limited is with respect to the scale of applicability of the findings to the Arctic writ-large as it covers such a wide geographical and cultural expanse.

Costing. A limitation of this research is the lack of resourcing and costing. Owing to scope and time limitations, this study did not include resourcing and costing, which will limit its effectiveness for policymakers and military commanders, who must make decisions with finite

resources in mind. Future research in this area could include a collaborative portion that includes resourcing and costing.

Canadian Defence Policy Review. The outcomes of the ongoing Canadian Defence Policy Review, and the implications regarding the Arctic are unknown. Launched in spring 2016, the Defence Policy Review is the Government of Canada's review of the current defence policy, in order to introduce a new defence policy in early 2017. The new policy will be developed in consideration of corresponding foreign affairs and international development reviews (Government of Canada, 2016). Although the outcomes of the Defence Policy Review are unknown as they relate to the Arctic, the Minister of National Defence's Mandate Letter specifically instructs the minister to, "renew Canada's focus on surveillance and control of Canadian territory and approaches, particularly our Arctic regions, and increase the size of the Canadian Rangers" (Prime Minister of Canada, 2015). I interpret that the Arctic will remain important for the CAF and DND. Therefore, while the policy direction may change, the findings of this paper are nonetheless anticipated to be relevant to inform policy makers and commanders as they navigate through these changes.

5.5 Implications for future research

Future research. This research made a unique contribution to the literature, and has exposed opportunities for future research. There are additional opportunities to delve into examining the cross connections of human security with exercising sovereignty. Specific opportunities include the following:

1. Examine another CAF Arctic installation with a view to understanding how its operations contribute to enhancing human security in the Arctic.

2. Study the human security implications and outcomes of CAF northern operations, such as Operation NANOOK and Operation NUNALIVUT.
3. Research Inuit and Aboriginal perspectives on how the CAF and DND contribute to, or vary from, community perceptions and understandings of human security.

Broadening the scope of the research topic would provide valuable comparative information, while remaining in the spirit of exercising sovereignty in the Arctic. Specific areas of future research include the following (from “small to big”):

1. Conduct a combined “policy-costing” study of this research to enhance its utility.
2. Obtain a holistic Government of Canada perspective, explore a cross-departmental view of exercising sovereignty and enabling human security, to extend the viewpoint beyond the CAF and DND.
3. Extending beyond the Government of Canada, but remaining within the Arctic, conduct comparative research between CFS Alert and Denmark’s Station Nord. This would likely illustrate commonalities, differences, and shared opportunities to improve international cooperation in the Arctic.

These future research options represent prospects for further development of the academic literature related to examining how the CAF and DND exercise sovereignty in the Arctic.

DND ethics approval. Researchers planning to interview CAF and DND personnel in the course of any research should be cognizant of timelines for ethics approval and limitations on what personnel are allowed to confide. It should be noted that members of the CAF and DND are legally not permitted to comment or offer opinion on government policy (per the Queen’s Orders and Regulations 19.37). It took four months of negotiation with the Social Sciences Research Board to obtain permission to interview CAF and DND personnel once university

ethical approval had been obtained. Future researchers should allocate a significant block of time to allow for such exchanges. The full terms of reference of the board's members were not clearly articulated, which also led to delays in obtaining approvals. I was restricted to asking only questions relating to capabilities within the *existing* mandate of CFS Alert. Although the researcher can make inferences about policy from participant feed-back, it is a notable restriction.

Chapter 6: Conclusion and Recommendations

This research is significant for the field of human security, as it has demonstrated tangible examples that link exercising sovereignty with enabling human security. These examples are important for the research, as new literature is emerging on the connections between sovereignty and human security. Further, through an examination of the current ways and means that CFS Alert exercises sovereignty, this research concluded that changes to CFS Alert's mandate are not required in order to further exercise sovereignty and further advocate for human security. This chapter will provide recommendations that are derived from the study, and concluding remarks to contextualize the research.

6.1 Recommendations

This research aimed to be relevant not only to academics, but principally to have practical applications for the CAF and DND. It is with this audience in mind that the following eight recommendations are presented to policymakers and military commanders for consideration:

1. *Communicating the findings:* Within existing DND Public Affairs programs, communicate the findings of this research, in order to enhance public awareness of how sovereignty is currently exercised at CFS Alert and the implications from enabling human security. Leveraging practical stories and examples from soldiers, sailors, airmen, airwomen, and civilian contractors at CFS Alert will better inform the public.
2. *Incorporate findings into future planning efforts:* It is recommended that policymakers, military staffs, and military commanders incorporate the findings in this research into future planning efforts for northern military operations, exercises, and search and rescue planning efforts. These findings have many

whole-of-government implications, and as such a whole-of-government approach should be taken when considering these findings.

3. *Seek “science suitors” for CFS Alert:* There is an opportunity for senior policymakers, senior bureaucrats, and military staff and commanders to seek potential “science suitors” to team up with CFS Alert. These partnerships could be from within government, international partners, or private partnerships. Projected scientific outcomes from science suitors should be broad and applicable across the Arctic region to benefit the maximum number of residents.
4. *Commence a distinguished visitor programme:* In order to expose Canadians to the Arctic by visiting CFS Alert, a distinguished visitor programme is recommended. Leveraging re-supply flights to CFS Alert, it is recommended to incrementally build a program that could include such visitors as Members of Parliament and Senators initially. If proven successful, the program could be expanded to senior members of government and industry. If the program remains successful, broadening the mandate to include CAF families could be considered. However, the implications of bringing families to CFS Alert will require significant examination in terms of policies and supports that are currently in place, and those that would be required. Consideration should also be given to exposing families to indigenous populations.
5. *Commence discussions with other government departments for enhanced use of CFS Alert:* Policymakers, senior bureaucrats, military staffs and commanders could begin exploratory discussions with some of the other government departments listed in this research, in order to prepare for an enhanced use of CFS

Alert. This could lay formal foundations, and lead to the initial development of memoranda of understanding, to facilitate follow-on cooperation.

6. *Revisit the research upon conclusion of the Defence Policy Review:* Upon conclusion of the Defence Policy Review in early 2017, this research may provide relevant options for policymakers and military commanders in light of anticipated changes to defence policy.
7. *Invest in CFS Alert for the long-term:* CFS Alert has been a long-standing strategic installation. With climate change increasing access to the Arctic, it is recommended that the Government of Canada continue to invest and maintain CFS Alert into the foreseeable future. This research articulated many benefits stemming from the exercising of sovereignty at CFS Alert, and future opportunities. CFS Alert is poised to not only remain important, but increase in relevance into the future beyond its primary mandate.
8. *Clarify the terms of reference for Social Science Review Board.* It is recommended that the personnel in the Director General Military Personnel Research and Analysis in appropriate positions, conduct a review of its policy on the conduct of social science research, in order to clearly articulate terms of reference for board members. This will facilitate and streamline future researchers' interactions with the Social Science Research Board, while protecting the integrity of the CAF and DND.

6.2 Conclusion

Four key themes create the framework that describe how CFS Alert currently exercises sovereignty, and how CFS Alert can further exercise sovereignty. *Presence* was identified in

varying ways by all participants as the central way CFS Alert currently exercises sovereignty, which was further defined by *signals intelligence, force projection, support to operations, episodic search and rescue, stewardship, science, and international cooperation*. Three themes were identified under ways and means CFS Alert can further exercise sovereignty and enable human security: *innovation, Arctic mobility, and further presence*. Ten specific ways were defined associated with these three themes: *innovation – enabling continued science, domain awareness, and partnerships; Arctic mobility – operational support hub, airlift, search and rescue, whole-of-government cooperation, and operations and exercises; and further presence – families and social awareness*.

The knowledge gained is pertinent as the effects of climate change will continue to increase accessibility of the Arctic, and the CAF and DND will continue to be important players in the whole-of-government team that exercises sovereignty in the Arctic. With increased access to the Arctic, the implications for human security will also continue to grow, and this study will enable the CAF and DND to understand how they can contribute to enabling that security. Owing to the high resource costs of conducting operations in the Arctic, this research provides policymakers and military commanders with tangible options to further exercise sovereignty by leveraging CFS Alert, and increase human security in the Arctic.

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Appendix A

Table 2

Summary of interview participant codes

Participant Code	Interview date	Occupation
A	22 June 2016	Former senior defence official
B	22 June 2016	Current defence official
C	22 June 2016	Current defence official
D	22 June 2016	Current defence official
E	27 June 2016	Former commanding officer CFS Alert
F	29 June 2016	Current Arctic analyst
G	30 June 2016	Current Global Affairs Canada senior official
H	04 July 2016	Current defence official
I	05 July 2016	Former commanding officer CFS Alert
J	07 July 2016	Current defence official
K	12 July 2016	Current defence official
L	14 July 2016	Former commanding officer CFS Alert
M	20 July 2016	Former senior enlisted member CFS Alert
N	22 June 2016	Former commanding officer

Note. Names and personal identifiers are not being disclosed in this thesis in order to ensure source protection.

Appendix B

Table 3

Summary of themes, codes, and definitions

Theme	Code	Definition
<p>Q1: What are the current ways CFS Alert exercises sovereignty? Which activities were most important to contributing to the overall mandate of CFS Alert in exercising sovereignty?</p>		
<p>Presence (P)</p>		
	P1 – SIGINT	<p>Signals intelligence (SIGINT) is intelligence produced by exploiting foreign communications systems (people talking to one another) and non-communications emitters (Joint Chiefs of Staff, 2013). SIGINT can provide valuable intelligence about the capabilities and intention of hostile forces. SIGINT can also be leveraged to help with search and rescue. CFS Alert is a site from which the CAF and DND collect foreign signals intelligence, foreign signals of interest, in support of Canadian military operations and Government of Canada foreign policy (NDDN047, 2015). The collection of foreign signals intelligence is one of CFS Alert’s three mandates, and is considered its primary mission (Royal Canadian Air Force, 2014).</p>
	P2 – Force projection	<p>Force projection is the, “deployment or posturing of military forces to influence a situation” (Termium Plus, 2011). As CFS Alert is commanded by the Royal Canadian Air Force, it is useful to note that “air power facilitates the projection of military power where and when needed, [and is] uninhibited by natural geographic barriers” (Canadian Armed Forces, 2010).</p>
	P3 – Support to operations	<p>Support to operations is defined by the researcher as the enabling support CFS Alert provides to named and non-named CAF operations in the Arctic, and support to international militaries. This support is primarily logistical in nature, such as the provision of food, fuel, and bed spaces. Operations are defined as, “the employment of an element or elements of the CAF to perform a specific mission” (Canadian Armed Forces, 2008).</p>
	P4 – Episodic	<p>Episodic search and rescue is defined by the researcher</p>

- search and rescue as CFS Alert’s use as a staging location (potential or real) on an ad-hoc basis for seasonal search and rescue in the High Arctic. It is a contingency location to base aircraft and search and rescue technicians, if required.
- P5 – Stewardship Stewardship of the land is a two-fold approach to conserve the existing habitat, and undertake reclamation efforts to improve the environment at CFS Alert, in order to preserve, and promote a healthy and vibrant Arctic land, sea, and air. Canada’s Arctic Foreign Policy notes that exercising sovereignty in the Arctic includes “responsible stewardship” (Department of Foreign Affairs, Trade, and Development Canada, 2010).
- P6 – Science Science is defined as CFS Alert’s support to scientific experimentation, as well as research and development. Scientific research is currently undertaken primarily through Environment Canada’s ongoing climate research conducted through the Dr. Neil Trivett Global Atmosphere Watch Observatory and Upper Air Weather Station (Royal Canadian Air Force, 2014). Research and development are expressed through Defence Research and Development Canada’s long-standing partnership with CFS Alert (Defence Research and Development Canada, 2015).
- P7 – International cooperation International cooperation is the exchange of knowledge, skills, information, and/or goods, which stem from CFS Alert. In practical terms, this includes hosting exchanges with other countries’ militaries, or imparting skills and techniques honed at CFS Alert to another country.

Q2: What are realistic and tangible opportunities to improve CFS Alert’s ability to exercise sovereignty? What intergovernmental opportunities could further contribute to exercising sovereignty at CFS Alert?

Innovation (I)

- I1 – Enabling continued science Enabling continued science is an expression to continue and enhance CFS Alert’s ability to support scientific experimentation, enable research and development, and support testing technologies. CFS Alert’s unique geographic location provides access to Arctic atmospheric conditions. CFS Alert also has distinctive access to the High Arctic tundra, which should continue to be used for research and development of an array of technologies.

I2 – Domain awareness	<p>Domain awareness is the effective and holistic understanding of anything within the air, maritime, and land domain, which could impact the security, safety, economy, or environment, within the High Arctic. This is a modified definition from Transport Canada’s definition of “maritime domain awareness” (Transport Canada, 2012), in order to align with the monitoring objectives espoused in the <i>Canada First Defence Strategy</i> (Department of National Defence, 2008). Domain awareness requires close collaboration with other government departments. Currently, SIGINT is CFS Alert’s principal domain awareness contribution.</p>	
I3 – Partnerships	<p>Partnerships is the mutually-beneficial arrangement between CFS Alert and another organization or entity. This includes partnerships with other governmental departments, as well as private partnerships such as universities and corporations.</p>	
Arctic mobility (A)	A1 – Operational Support Hub	<p>An operational support hub is defined as, “pre-negotiated arrangements to facilitate the movement of people, materiel, equipment and supplies in far-reaching locations.” This is a modified definition used by the CAF, which is a similar definition, except that the arrangements are between countries (Department of National Defence, 2016). Essentially, an operational support hub is the receiving and staging location to enable follow-on operations.</p>
	A2 – Airlift	<p>Airlift refers to the continued ability for CAF’s aircraft to move personnel and material to, around, and beyond CFS Alert. This code combines strategic and tactical airlift – meaning both long-haul and short-haul aircraft. Currently the CC-177 Globemaster III (strategic aircraft), CC-130 Hercules (tactical airlift), CH-146 Griffon (utility helicopter), and CH-147 Chinook (medium lift helicopter) are capable of flying to, and operating around, CFS Alert.</p>
	A3 – SAR	<p>Search and rescue refers to the future development and potential use of CFS Alert as a search and rescue aeronautical hub. The CAF has the national lead for aeronautical SAR, and covers the entirety of Canada</p>

		through three principal hubs in Victoria, British Columbia, Trenton, Ontario, and Halifax, Nova Scotia.
	A4 – Whole-of-government cooperation	Whole-of-government cooperation refers to working with other Canadian government departments to increase ways to move and operate in the High Arctic.
	A5 – Operations and exercises	Operations and exercises refers to an increased use of CFS Alert to enable and support named and non-named CAF operations in the Arctic, and support to international militaries. This support is anticipated in the realm of logistical support (as it currently does), but with a possible view to support more operations and exercises. Operations are defined as, “the employment of an element or elements of the CAF to perform a specific mission” (CAF, 2008). Exercises are defined for this research as the employment of military forces for the purposes of training.
Further presence (F)	F1 – Families	Families refers to exposing CFS Alert to the families of CAF personnel serving at CFS Alert by bringing those families to the station.
	F2 – Social awareness	Social awareness is the exposure of southern Canadians to the Arctic Canada, through lived experiences gained at CFS Alert. Social awareness combines bringing Canadians to CFS Alert and informing Canadians more about CFS Alert.

Note. This data was obtained through interviews with 14 participants, and is a summary of themes, codes, and definitions described throughout the thesis.