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LEVERAGING AIR MOBILITY TO SUPPORT CANADIAN ARCTIC SOVEREIGNTY

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Master of Defence Studies

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LEVERAGING AIR MOBILITY TO SUPPORT CANADIAN ARCTIC SOVEREIGNTY

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ABSTRACT

Canada is an Arctic nation. However, in the past, government (and Canadian public) attention to this important region has only come to the forefront during times of crisis. With the acceptance of climate change as a reality and the enduring effects that it will have on the North, there has been a renewed focus on Arctic sovereignty over the past decade. A more accessible Arctic increases the risk of environmental and criminal threats, as well as a number of other emerging national security concerns.

In light of the new Arctic paradigm, Canada has re-established Arctic sovereignty as a priority. Over the past decade, Canada has introduced several key policies to address Arctic sovereignty issues and establish a Whole of Government, integrated approach to the region. The unique Air Mobility capability of the Royal Canadian Air Force will be a key enabler to project a response anywhere in the North through a multi-fleet approach of strategic, tactical, and utility airlift. This study shows that Air Mobility will need to be leveraged to bring limited resources to bear across the massive area of the Canadian Arctic and provide the baseline support required for the CAF to meet its northern mandate.

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The Canadian Forces (CF), in general, and the Royal Canadian Air Force (RCAF), in particular, have played, and continue to play, a high-profile role in exercising sovereign control over Canada's Arctic. Although the environmental challenges facing the CF when operating in this theatre remain daunting (from climate, to vast distances and isolation, to a lack of infrastructure), rising interest in the region may, in the future, require enhanced CF responses to defend Canadian territory, respond to emergencies and crises, support civilian organizations, and assist our allies. The Canada First Defence Strategy directs the CF to "have the capacity to exercise control over and defend Canada's sovereignty in the Arctic."

- P.W. Lackenbauer and Major Bill March¹

INTRODUCTION

Canada is an Arctic nation and global warming will have a large impact on the Government of Canada's policies regarding this important region. During the Cold War, Canadian Arctic policy was focused on the defence aspect of a Soviet Union threat flying over the pole. This paradigm resulted in a policy based on bi-lateral agreements with the United States such as the collective defence of the North American continent. After the collapse of the Soviet Union and the end of the Cold War, the world expected to capitalize on a peace dividend. The diminished threat from over the North Pole led to an impression of security and thus no perception of a sense of urgency for any additional actions; the vastness Canada's Arctic and its harsh, inhospitable climate was thought to provide its own security.

However, as the knowledge and acceptance of global warming came to the forefront of discussions, both internationally and in Canada, it became readily apparent that the resulting reduction of Arctic ice cover would lead to greater accessibility to the Arctic in terms of commercial shipping, the exploration for and exploitation of natural resources, and a number of emerging threats to national security. The renewed interest in the region has been the catalyst for a Government of Canada policy with a strong focus on Canada's North. After years of neglect,

¹ P. Whitney Lackenbauer and W. A. March, "Introduction" in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force's Experience in the Arctic*, ed. P. Whitney Lackenbauer and W.A. March, (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), vii.

this renewed focus on Arctic policy can be seen in the Paul Martin Jr. Liberal Government's *International Policy Statement* (2005), and the Stephen Harper Conservative Government's campaign platform (2005-2006), the Canada First Defence Strategy (CFDS) (2008), plus its Canada's Northern Strategy (2009) and the Statement on Canada's Arctic Foreign Policy (2010).

In light of global warming and the emerging commercial interest in the Arctic, Canada has made its policy for the North a priority. These recent policy documents have clearly described the Government's expectations of the Canadian Armed Forces (CAF) as a tool for the implementation of the policy. From this high-level political direction, the Department of National Defence (DND), and specifically the CAF, have focused their efforts on meeting the political and strategic intent. These policy documents, with a focus on Arctic sovereignty, act as a chapeau that encompasses the safety, security, and defence of Canada's Arctic. The CAF has important roles to play in all three domains. Clearly, the defence mandate falls squarely in the realm of the CAF and while DND also concerns the domains of safety and security, it is more often in a supporting role to Other Government Departments (OGD) and Agencies.² However, given the unique military capabilities of the CAF, this support, especially in the Arctic, is a key enabler to the Whole of Government (WOG) approach to implementation of Canadian Arctic Policy and sovereignty.

This study will discuss the Government of Canada's renewed interest and efforts in the Arctic. The expectations for the CAF's role are apparent through signals from the Government on new capabilities, explicit task and directives in the policy documents, and implicit tasks and support to the WOG approach to sovereignty in the Arctic. In order to meet the Government's

² Public Safety Canada, *Federal Emergency Response Plan* (Ottawa: Public Safety Canada, January 2011), A-9; Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), Appendix A.

policy objectives, the CAF will need to play a key role in application of Canada's sovereignty in the Arctic and be able to operate throughout the vast expanse of Canada's North. The CAF, and particularly the Royal Canadian Air Force's (RCAF) Air Mobility community, will play a crucial role in projecting Canada's sovereignty of the region. This study shows that whether in a primary CAF or supporting WOG role, Air Mobility will need to be leveraged to bring limited resources to bear across the massive area of the Canadian Arctic and provide the baseline support required for the CAF to meet its northern mandate. This study will discuss why Air Mobility will be essential and what is needed to develop a robust and relevant capability to support Government of Canada policy in response to a defence threat or supporting Other Government Departments and Agencies dealing with an emerging safety and/or security incident. It will examine the need for a tiered system of mobility options for the CAF to effectively operate throughout all areas of the Canadian Arctic.

The Government of Canada's policy objectives in the Arctic, and the expectations of Canadians, will require the CAF to be able to operate throughout the vast expanse of the country's northern region. Currently, there are only modest initial response elements located in the North. A more fulsome response to accomplish the defence tasks, or to provide support to Other Government Departments and Agencies in the safety and security domains, would therefore require augmentation from high readiness units located in southern Canada. In order to be able to provide this augmentation, the CAF maintains high readiness units that can deploy anywhere in Canada within 24 hours or less.³

The response capabilities of the high readiness units have proven their value in the

³ National Defence and the Canadian Armed Forces, "Yukon count on the Immediate Reaction Unit," last modified 16 August 2013, <http://www.forces.gc.ca/en/news/article.page?doc=yukon-count-on-the-immediate-reaction-unit/hkfnhjuy>.

southern regions of Canada; a recent example being the response to the flooding in Southern Alberta in the spring of 2013. This was facilitated by the relative ease of mobility on southern infrastructure and the immediate availability of tactical aviation that was in the area and at the disposal of the Joint Task Force Commander.⁴ However, the Arctic poses an acute mobility challenge. The first hurdle is the challenge of deploying an immediate readiness unit to the general area requiring support. Given the great distances, not to mention the lack of ground transportation routes, this will require some type of airlift. Secondly, getting the troops and equipment to the specific area to conduct operations will most likely not be supportable by means of ground modes of transportation. Finally, the sustainment of the force will require some capability with links to the more robust resources located in southern Canada.

The main difficulty will be the projection of the force to permit a timely response of the appropriate scale. In the past, when there was little expectation of the need for extended operations in the Canadian Arctic, an ad hoc approach was accepted as sufficient. However, the renewed focus on the North, coupled with the realities of global warming and a more accessible Arctic, has increased the awareness of the new and emerging threats to Canadian sovereignty in the Arctic. As part of this understanding there is the expectation of a more deliberate response by the CAF both in the defence of Canada and in support of Other Government Departments and Agencies for safety and security issues. The magnitude of the problem space, when combined with fiscal constraint, exposes the capability gaps created by the realities of time and space. This serves to highlight the need for robust mobility options to access every corner of the Canadian Arctic. The RCAF, and more specifically its Air Mobility community, will play a key role in this critical element for operations in the Arctic and the Government of Canada's assertion of Arctic

⁴ National Defence and the Canadian Armed Forces, "Operation LENTUS 13-01," last accessed 17 Nov 2014, <http://www.forces.gc.ca/en/operations-canada-north-america-past/op-lentus-13-1.page>.

Sovereignty. The challenges of a timely response over the great distances and harsh conditions of the Arctic will require a tiered mobility and infrastructure posture. This would consist of main operating bases in the south, strategic airlift to regional hubs in the Arctic, tactical airlift to forward operating bases in the area of operations, and tactical aviation.

In order for these objectives to be achieved, several pieces must be put into place and exercised on a regular basis so that the CAF is able and ready to provide the effects to support the Government of Canada policy in the Arctic. The Government of Canada policy for the Arctic indicates responsibilities for a multitude of departments. Therefore, the solutions must be robust and capable of meeting the CAF's requirement as lead department in the defence role while also being capable of providing support to other lead departments in the safety and security domains. Currently, there are gaps in the Government of Canada's ability to project the necessary capabilities throughout the Arctic to ensure Canadian sovereignty.

This study will discuss ways to mitigate the gaps and develop an Air Mobility solution for the Arctic that will meet the mandate of Canadian Arctic policy while being mindful of fiscal realities. The solution must be sustainable in a climate of limited fiscal resources while also taking into account the limited support available in the local northern communities; the solution must not be a burden on their infrastructure and economy. The expense and challenges of operations in the Arctic will require the synergies of a multi-department solution that is integrated across all stakeholders so as to provide a comprehensive and fiscally achievable Government of Canada effect. The RCAF will be the key enabler with Air Mobility being the force multiplier that leads the way for the Government of Canada to put action behind the policy of Canadian Arctic sovereignty.

This study is divided into four chapters. The first chapter provides background of Canada

as an Arctic nation and the effects of climate change with respect to Canadian sovereignty. Climate change has been a catalyst for the increased focus on Arctic policy. The chapter goes on to describe the key policies for the Arctic that the Government of Canada has put in place over the past decade. Chapter two examines these policies from the CAF perspective. The CFDS, along with the renewed focus on Arctic policy, orients the CAF for domestic operations with a clear focus on the North. It will serve to identify the requirement for the CAF capability to respond to events in the North. Chapter three identifies the gaps between Government of Canada policy and the current force posture of the Canadian Armed Forces. These gaps generate the need for a solution that allows the CAF to provide a meaningful and timely response that is affordable. Chapter four will suggest a solution to meet this need. The solution will be based on a tiered, multi-fleet Air Mobility solution that can quickly mobilize a CAF response from southern garrisons to any location throughout Canada's vast northern frontier. It is an option that fits into the dialogue on how best to achieve the Government of Canada's Northern policy objectives.

The discussion on Arctic sovereignty has ranged from diplomacy to the requirement for permanently based military resources. Historically, the government's position has ebbed and flowed in correlation with current events. However, since the mid-point of the first decade of the 21st century there has been a more sustained interest in meeting the obligations of exercising sovereignty over Canada's Arctic.

Academic work related to this paper is mostly focused on policy and development in the Arctic. In *Ice and Water*, John English chronicles the evolution of the international dialogue and engagement concerning the Arctic. His work is germane to this study as it recounts the ebb and flow of interest in the Arctic and the intensified interest in the region that has been insured by

climate change.⁵ The Arctic dialogue in the 1990s was centred on cooperation and diplomacy. There was little concern over military challenges to Canadian sovereignty. Franklyn Griffiths established a narrative with the military as part of an integrated approach to Arctic sovereignty to facilitate cooperation and diplomatic solutions among the circumpolar states.⁶ Despite climate change, he notes that there is an opportunity for cooperation that can benefit all stakeholders. However, he warns that if path of circumpolar cooperation is not followed, there is significant risk for the militarization of the Arctic and potential conflict that will be to the detriment of Canadian interests and the peoples of the North.⁷ Michael Byers continues along this theme through the lens of an international lawyer. He views Canadian Arctic sovereignty (and that of other Arctic nations) as an important concept to facilitate cooperation in the region.⁸ He acknowledges the challenges of Arctic sovereignty in the light of climate change and the associated threats, but maintains that diplomatic solutions will continue to be sought and developed through the application of international law.⁹

Rob Huebert raises the alarm on the challenges to Canadian Arctic sovereignty that climate change will introduce. In the past, interest in the Arctic was sporadic and only garnered attention in times of crisis. However, recent acceptance of the effect of climate change and the increased access to the Arctic has sparked renewed interest in the region. With increased access to the Arctic there has been a call for a stronger military component to protect Canadian

⁵ John English, *Ice and Water*, (Toronto: Penguin Books Canada Inc., 2013).

⁶ Franklyn Griffiths, "Epilogue," in *Arctic Alternatives: Civility or Militarism in the Circumpolar North*, ed. Franklyn Griffiths, (Toronto: Science for Peace, 1992), 279-309.

⁷ Franklyn Griffiths, "Towards a Canadian Arctic Strategy," in *Canada and the Changing Arctic – Sovereignty, Security, and Stewardship*, (Waterloo: Wilfrid Laurier University Press, 2011), 181-225.

⁸ Michael Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North* (Vancouver: D&M Publishers Inc., 2009).

⁹ Michael Byers, *International Law and the Arctic* (Cambridge: University Printing House, 2013).

sovereignty and security from evolving and emerging threats.¹⁰ Huebert emphasizes the fact that security and sovereignty are inextricably linked and as such the government's responsibilities in the region speak to the need for an increased military presence, including the consideration of permanently based search and rescue assets.¹¹

Recent Canadian policy positions indicate a more holistic WOG approach. This current approach relies upon the military to defend Canadian sovereignty as well as act as a key component of a Government of Canada integrated response to a crisis in the Arctic. The work of Whitney Lackenbauer recognized the importance of relationships in Canada's approach to the Arctic. This approach extends from the grassroots partnerships at the community level and extends to the need to combine defence and diplomacy in forging a sustainable strategy for the Arctic.¹² The sense is that despite the increased focus on the Arctic over the past decade, there is still much to be done. The policies of the current government are a good starting point but will require a commitment to a WOG, integrated approach in the Arctic.¹³

This paper acknowledges government ambitions for Arctic sovereignty and proposes a solution to achieve the expectations within the constraints of fiscal realities. It addresses the requirement for the military to be a key component of a WOG integrated approach where, for the most part, the CAF is supporting the lead role of another department. The potential solution offered enables the projection of a meaningful and timely government response to a crisis anywhere in the North without the fiscally prohibitive cost of dedicated infrastructure and

¹⁰ Rob Huebert, "Canadian Arctic Sovereignty and Security in a Transforming Circumpolar World," *Foreign Policy for Canada's Tomorrow, no.4* (Toronto: Canadian International Council, 2009): 6-7.

¹¹ Robert Huebert, "Renaissance in Canadian Arctic Security?," *Canadian Military Journal* 6, no. 4 (Winter 2005-2006): 17-29, <http://www.journal.forces.gc.ca/vo6/no4/doc/north-nord-eng.pdf>.

¹² P. Whitney Lackenbauer, "Introduction," in *Canada and the Changing Arctic – Sovereignty, Security, and Stewardship*, (Waterloo: Wilfrid Laurier University Press, 2011), 3.

¹³ Ken S. Coates *et al.*, *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen Publishers, 2008), 189-217.

permanently stationed forces.

Throughout this study, as in many publications, the North and Arctic are used interchangeably. In light of the limited defence threat in the North and fiscal realities, there is little justification for a permanent northern presence for Canada's military other than some expressions of a consideration for a northern-based Search and Rescue capability. However, as will be discussed in this paper, the solution must be able to provide a meaningful and timely response while still being achievable with limited resources. Some of the information contained in this study is drawn from open secondary source documents vice the primary source in order to avoid reference to restricted documents not generally accessible to the public. As such, much of the reference material for this paper was drawn from Government of Canada publications as well as DND and CAF documents, orders and presentations.

CHAPTER 1 – CANADA AS AN ARCTIC NATION - GOVERNMENT OF CANADA NORTHERN POLICY

Introduction

Canada is an Arctic nation. As such, global warming will affect Canada to a greater extent than most by making the Arctic more accessible and thus increasing the risks to its sovereignty. The vast estimates of untapped natural resources in the Arctic have attracted the attention of non-Arctic states and actors. The increased focus on the Arctic has highlighted the importance of a coherent national strategy for the North that clearly and firmly articulates Canada's sovereignty. This chapter will link the effect of climate change on the Canadian Arctic to the increased importance placed on the Arctic by other Arctic and also non-Arctic nations. The discussion will consider the implications to Canadian sovereignty and look at what this means to the Government of Canada in terms of policy and the roles of the Canadian Armed Forces as a key enabler in the implementation of the policy.

Climate Change

Global warming (or climate change) remains a constant feature in the news. Climate change is no longer an idea that is bantered about only by alarmists: it has become a well-established fact backed up by scientific data. The US National Academy of Science has stated, "Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise."¹⁴ While climate change affects the planet as a whole, this global rise in temperature is particularly concerning for the Arctic given the fact that "roughly 8 percent of the earth above latitude 66° 33' north, is

¹⁴ National Research Council, Committee on the Science of Climate Change, *Climate Change Science: An Analysis of Some Key Questions* (Washington: National Academy Press, 2001), 1.

warming faster than many climate scientists expected—at nearly twice the rate of the rest of the planet.”¹⁵

The effects of climate change are most noticeable and clearly documented in the sea ice of the polar caps. The sea ice has decreased by more than 40% over the past three decades and the last six years have been documented as the lowest since 1979 when satellite imagery began tracking this metric.¹⁶ The decline in sea ice is forecast to continue and many experts forecast that the Arctic will have ice-free summers within a matter of decades; for the past several summers the North West Passage has already been ice-free. This will lead to increased exploitation of the region not only in terms of natural resources (which are estimated to be extensive) but also with respect to the increased use of northern routes for commercial shipping.¹⁷

As the ice retreats, the effect becomes more pronounced and results in younger and thinner sea-ice which is much more likely to melt in the summer. The less ice that there is, the less reflection of the sun’s warming radiation and the more dark heat absorbing sea results in an accelerated thaw and a delayed formation of ice.¹⁸

Such environmental changes will have a profound effect on the region in terms of access and scope of use. The use of the northern sea routes, such as the North West Passage, will result in substantial savings in time, and therefore money, for commercial shipping operators. This increases the interest in the region to not only the Arctic nations but to many other non-Arctic trading nations; polar shipping routes shave thousands of dollars and days off of the traditional

¹⁵ Council on Foreign Relations, “The Emerging Arctic,” last accessed 29 November 2014, <http://www.cfr.org/arctic/emerging-arctic/p32620#/>.

¹⁶ *Ibid.*

¹⁷ Department of National Defence, *The Future Security Environment 2008-2030: Part One*, (Ottawa: Chief of Force Development, 2010), 43.

¹⁸ Council on Foreign Relations, “The Emerging Arctic,” last accessed 29 November 2014, <http://www.cfr.org/arctic/emerging-arctic/p32620#/>.

southern routes through the Suez or Panama canals.¹⁹ In 2011, Russian President Vladimir Putin said: “I want to stress the importance of the Northern Sea Route as an international transport artery that will rival traditional trade lanes in service fees, security and quality.”²⁰

This is important to Canada for two reasons. The first concerns differing international views on the status of the North West Passage. The Canadian stance is that it is an internal waterway and thus sovereign Canadian territory. However, the United States and the European Union challenge this position claiming that the North West Passage is an international strait and that Canada has no jurisdiction over any claims to control international shipping through it. Secondly, with the potential for increased maritime traffic, whether through Canada’s North West Passage or via other polar routes, there is also an increased risk to the environmental security of Canada’s Arctic.²¹

In addition to the benefits to commercial shipping, the increased accessibility to the Arctic due to climate change also gives rise to commercial interests with respect to the untapped natural resources. Increased access leads to increased exploration, which in turn leads to the discovery of more resources. The natural resource potential has created great expectations for the region.²² Of primary interest to most states are the enormous untapped oil and gas reserves in the Arctic. As academic Robert Huebert has noted, “In 2008, the U.S. Geological Survey estimated that the Arctic potentially holds up to 30 percent of the world’s undiscovered gas reserves and 13

¹⁹ *Ibid.*

²⁰ Gleb Bryanski, “Russia’s Putin say Arctic trade route to rival Suez,” Reuters, last updated 22 September 2011, <http://ca.reuters.com/article/topNews/idCATRE78L5TC20110922?sp=true>.

²¹ Office of the Auditor General of Canada, *Report of the Commissioner of the Environment and Sustainable Development - Chapter 3 Marine Navigation in the Canadian Arctic*, (Ottawa: Public Works and Government Services, 2014), 2-3.

²² P. Whitney Lackenbauer, “From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World,” *Foreign Policy for Canada’s Tomorrow*, no.3 (Toronto: Canadian International Council, 2009): 56.

percent of the world's undiscovered oil reserves."²³ In addition to oil and gas, there are also economically viable mineral deposits. In Canada alone, three diamond mines have vaulted Canada to the world's third largest diamond producer.²⁴ Additionally, the Mary River project on Baffin Island has the potential to be the largest and purest iron ore deposit in the world with an expectation of producing 18 million tons per year for 21 years.²⁵ Such vast untapped resources have piqued the interest of non-Arctic states and actors. For instance, South Korea is not an Arctic nation yet its shipyards are developing the capability to build oil and gas carriers for operating in the Arctic while the European Union and China are also showing great interest in the region.²⁶ The strategic effect of climate change has served as a catalyst for global interest in the North and Canada's renewed concern over Arctic sovereignty. Yet strategic interest in the Arctic is not new.

Canada and the Arctic

During the Cold War, the Arctic was the frontline in terms of a buffer between North America and the Soviet Union. There was minimal threat of the Soviets launching a ground attack through the North; however, the route over the North Pole was the most direct avenue for Soviet strategic bombers and nuclear missiles to attack North American cities. This threat resulted in a number of agreements between the Governments of Canada and the United States to develop surveillance of the northern airspace approaches to North America and various means for protecting it. To enable North American air defence, Canada and the United States

²³ Robert Huebert, "Canada and the Newly Emerging International Arctic Security Regime," in *Arctic Security In An Age Of Climate Change* [e-book], ed James Kraska, (Cambridge: Cambridge University Press, 2011), 201.

²⁴ *Ibid.*

²⁵ Qikiqtani Inuit Association, "What is the Mary River Project," last accessed 13 December 2014, http://www.qia.ca/en/What_is_the_Mary_River_Project.

²⁶ Robert Huebert, "Canada and the Newly Emerging International Arctic Security Regime," in *Arctic Security In An Age Of Climate Change* [e-book], ed James Kraska, (Cambridge: Cambridge University Press, 2011), 202.

established the North American Air (later Aerospace) Defence Command (NORAD) and a network of radars across the Canadian Arctic and Alaska.²⁷

With the end of the Cold War, the perceived threat to Canada and the vital ground of the Arctic was seen as non-existent. As Huebert notes, “The end of the Cold War accelerated the process of the de-securitisation of the Canadian North. Almost all ongoing activities were either stopped or substantially reduced.”²⁸ Security in the Arctic was not seen as pressing concern.²⁹ Also, there was an expectation of a peace dividend now that there was no longer a threat of an attack over the polar route by the Soviet Union. As a result, the Canadian Forces experienced substantial cuts to both personnel and monetary resources throughout the 1990s. Operating in the remote locations of the Arctic with its harsh and unforgiving environment is very costly and the cuts “required the Canadian Forces to make hard decisions in favour of their core priorities. It became clear that the Arctic was not a high priority.”³⁰

By the end of the 1990s, it was evident that Arctic policy, in terms of security, had been neglected. The end of the Cold War and the anticipated peace dividend resulted in deep cuts to the military budget and degradation of capabilities.³¹ With mounting evidence that global warming was real, policy makers could no longer ignore the Arctic; global warming has consequences beyond the impact to the climate – it has profound implications to policy with

²⁷ Joseph T. Jockel, *Security to the North – Canada-U.S. Defense Relations in the 1990s*, (East Lansing: Michigan State University Press, 1991), 120. For a detailed discussion of these arrangements and the formation of NORAD, see Joseph Jockel, *No Boundaries Upstairs: Canada, the United States and the Origins of North American Air Defence, 1945-1958* (Vancouver: University of British Columbia Press, 1987).

²⁸ Robert Huebert, “The Rise and Fall (and Rise?) of Canadian Arctic Security,” in *Defence Requirements for Canada’s Arctic*, ed. Brian MacDonald (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 13.

²⁹ Paal Sigurd Hilde, “The ”new” Arctic – the Military Dimension”, *Journal of Military and Strategic Studies* 15, no. 2 (2013): 132, <http://jmss.org/jmss/index.php/jmss/article/view/531>

³⁰ Robert Huebert, “The Rise and Fall (and Rise?) of Canadian Arctic Security,” in *Defence Requirements for Canada’s Arctic*, ed. Brian MacDonald (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 14.

³¹ P. Whitney Lackenbauer, “From Above: The Royal Canadian Air Force and the Evolving Arctic Security Environment,” *Airforce Magazine* 37, no. 4 (2014): 7.

respect to Canadian sovereignty.³² Global warming, along with advances in technology, has made the Arctic more accessible than ever. Increased accessibility to the Arctic also increases the challenge of exercising sovereignty, providing safety and security throughout the region, and having the capability to defend Canada as well as North America. It is important to note that while there is no immediate military threat to Canada's Arctic, there are still many threats to Canadian sovereignty, safety, and security in the Arctic. The newly accessible North can be expected to promote increased activity which will raise safety and security challenges to Canadian sovereignty; Canada will need to be prepared to respond to disasters, environmental threats as well as organized crime and other illegal activity that will seek to exploit the region.³³

Policy

It was not until mid-way through the first decade of the new millennium that a deliberate emphasis on Arctic sovereignty could be seen in Canadian policy.³⁴ The Martin Liberal Government of the time, followed by the Harper Conservative government, both issued strong policy documents that left no doubt to the importance of Arctic Sovereignty and Canada's resolve to protect it.³⁵ This renewed focus on Arctic policy can be found in Canada's International Policy Statement (2005), Harper's campaign platform (2005-2006), the CFDS (2008), Canada's Northern Strategy (2009), and the Statement on Canada's Arctic Foreign Policy (2010). Each will be discussed in turn.

³² Paal Sigurd Hilde, "The "new" Arctic – the Military Dimension", *Journal of Military and Strategic Studies* 15, no. 2 (2013): 132, <http://jmss.org/jmss/index.php/jmss/article/view/531>

³³ Canadian Joint Operations Command, *CJOC Plan for the North* (Ottawa: Canadian Joint Operations Command, 28 January 2014), 5.

³⁴ P. Whitney Lackenbauer, "From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World," *Foreign Policy for Canada's Tomorrow*, no.3 (Toronto: Canadian International Council, 2009): 11.

³⁵ Robert Huebert, "The Rise and Fall (and Rise?) of Canadian Arctic Security," in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 19.

The Martin Liberal Government realized that Arctic policy had been neglected and that, despite the end of the Cold War, there was still a need for a framework to support Arctic security. December 2004 saw the announcement of a Liberal government Northern Strategy. The Strategy outlined a framework to address northern concerns and was developed in partnership with the territorial leaders.³⁶ This approach set the conditions for the release of the Canadian International Policy Statement in the spring of 2005. This was the first policy document that signaled a renewed Canadian interest in the Arctic. In it, the government acknowledged a neglect of Arctic security and the need for action due to increased activity in the North.³⁷ The defence portion of the document clearly laid out specific target areas for Canadian Forces to act on. In all domains: land, sea, and air, the unifying theme was to increase and enhance surveillance of the Arctic and display a more visible presence in the region in order to assert Canadian sovereignty.³⁸ The approach taken to implement the assertion of sovereignty over the Arctic was oriented towards a passive monitoring function. Proposed programs included upgraded sensors on patrol aircraft, space based surveillance and unmanned aerial vehicles. However, the Martin Liberal Government fell before it could deliver on the budgetary promises required to implement the policy.³⁹

In contrast, the Arctic has been a top political priority of the Harper Conservative Government from the beginning. Even before he was elected, Stephen Harper raised the profile

³⁶ P. Whitney Lackenbauer, "From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World," *Foreign Policy for Canada's Tomorrow*, no.3 (Toronto: Canadian International Council, 2009): 12.

³⁷ Robert Huebert, "The Rise and Fall (and Rise?) of Canadian Arctic Security," in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 19.

³⁸ Department of Foreign Affairs and International Trade, *Canada's International Policy Statement: A Role of Pride and Influence in the World – OVERVIEW* (Ottawa: Department of Foreign Affairs and International Trade, 2005), 8.

³⁹ P. Whitney Lackenbauer, "From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World," *Foreign Policy for Canada's Tomorrow*, no.3 (Toronto: Canadian International Council, 2009): 12.

of the Arctic, foreshadowing the importance that he would place on the Arctic while Prime Minister. Paul Sigurd Hilde reflected that during the 2005 election campaign, Stephen Harper's Conservative Party had made the Arctic a high-profile issue.⁴⁰ During campaign stop in Winnipeg on December 22nd, 2005, "Harper stated his commitment to strengthening Canadian ability to protect its Arctic Sovereignty and Security."⁴¹ Since Stephen Harper's Conservatives took power in 2006, there has been a steady stream of policy statements re-affirming their commitment to Canada's North. On July 9th, 2007 at Esquimalt, British Columbia (BC), in his announcement of the new Arctic offshore patrol ships, the Prime Minister said,

Canada has a choice when it comes to defending our sovereignty over the Arctic. We either use it or lose it. And make no mistake, this Government intends to use it. Because Canada's Arctic is central to our national identity as a northern nation. It is part of our history. And it represents the tremendous potential of our future.⁴²

Following these early signals on the importance of the Arctic, the Harper Conservative Government followed up with the CFDS in 2008, Canada's Northern Strategy in 2009, and the Statement of Canada's Arctic Foreign Policy in 2010.

The strong commitment toward the Arctic and strengthening the capability of the CAF has been has been a central theme of the Harper Conservative Government.⁴³ This was re-enforced in the CFDS. It highlights six core missions for the Canadian Forces with the first being to "Conduct daily domestic and continental operations, including in the Arctic and through

⁴⁰ Paal Sigurd Hilde, "The "new" Arctic – the Military Dimension", *Journal of Military and Strategic Studies* 15, no. 2 (2013): 132, <http://jmss.org/jmss/index.php/jmss/article/view/531>

⁴¹ Robert Huebert, "The Rise and Fall (and Rise?) of Canadian Arctic Security," in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 20.

⁴² Prime Minister's Office, "Prime Minister Stephen Harper announces new Arctic offshore patrol ships: Canada's new government to move forward with deep water port in the Arctic," last modified 9 July 2007, <http://www.pm.gc.ca/eng/media.asp?id=1741> .

⁴³ Paal Sigurd Hilde, "The "new" Arctic – the Military Dimension", *Journal of Military and Strategic Studies* 15, no. 2 (2013): 132, <http://jmss.org/jmss/index.php/jmss/article/view/531>

NORAD.”⁴⁴ The key take away from this document, in respect to the role of the military in Canadian Arctic policy, is that it provides the Canadian Forces with clear signals on the importance of the Arctic to the Government. Furthermore, it lays out the roadmap for the Canadian Forces in terms of equipment and capabilities that it will use in planning to posture itself to meet these expectations. Due to the vast distances and the harsh conditions that make the Arctic such a challenging environment in which to operate, the planned capabilities outlined in the CFDS were critical piece of the Canadian Forces’ mandate.⁴⁵

The strategic environment that is described in the CFDS speaks to the new and emerging security challenges that Canada is facing. It specifically mentions the paradigm that has emerged since the end of the Cold War and recognizes that in hindsight, the peace dividend was short lived. Canada did not immediately understand the evolving security environment and as a result did not fully appreciate the implications to Arctic sovereignty.⁴⁶ Globalization has spawned new threats to the security of Canadians and “include possible terrorist attacks, human and drug trafficking, foreign encroachments on Canada’s natural resources, and potential outbreaks of infectious disease.”⁴⁷

In specific reference to the Arctic, the CFDS makes particular note of the fact that global warming is making the region more accessible. In the past, the expectations were that the Arctic served as its own defence against such threats due to the inhospitable nature of the environment. However, with the effects of climate change and ever more sophisticated adversaries (including Transnational Criminal Organizations), the Arctic has become a new vector for them to affect

⁴⁴ Department of National Defence, *Canada First Defence Strategy* (Ottawa: Government of Canada, 2008), 3.

⁴⁵ *Ibid*, 4-6.

⁴⁶ *Ibid*, 6.

⁴⁷ *Ibid*.

Canadian and North American security. A more accessible Arctic will, in addition to economic activity, set the conditions for an increased security threat from illegal activities. These newly emerging threats have the potential to increase the military support to other government departments and agencies that will be leading the response.⁴⁸

The CFDS sets out a clear level of ambition for and the Government's expectations of the Canadian Forces – defend Canada, defend North America, and contribute to international peace and security. As the name of the document unmistakably conveys, "First and foremost, the Canadian Forces must ensure the security of our citizens and help exercise Canada's sovereignty."⁴⁹ The policy gives explicit direction with regards to the Arctic and states that "the Canadian Forces must have the capacity to exercise control over and defend Canada's sovereignty in the Arctic."⁵⁰

In addition to these three roles, the CFDS explicitly identifies six missions that the Canadian Forces are expected to be able to deliver on with three of them having a direct link to the Arctic:

- Conduct daily domestic and continental operations, including in the Arctic and through NORAD;
- Respond to a major terrorist attack; and
- Support civilian authorities during a crisis in Canada such as a natural disaster.⁵¹

The CFDS not only provides direction on Government priorities for the roles and missions of the Canadian Forces, it also signaled the investment in equipment to come and a plan for the

⁴⁸ *Ibid.*

⁴⁹ *Ibid*, 7.

⁵⁰ *Ibid*, 8.

⁵¹ *Ibid*, 10.

sequencing of the programs. National Defence is developing a comprehensive strategy to implement the government commitment through a deliberate investment programme.⁵²

The Harper Conservative Government approach to defending Canadian sovereignty is in contrast to the more passive approach of past governments. Whitney Lackenbauer notes this approach as a “shift from past governments that favoured *recognition* – persuading others to accept our claims without demonstrating a capacity to enforce them – to a Harper government that favours *enactment*.”⁵³ Also in contrast to the Martin Liberal Government, the Harper Conservative Government has remained in power long enough to examine how the policy has been carried out. The commitments made in the policy statements were followed up by substantial increases to the defence budget. Up until 2010, the government had been living up to the commitments made in policy; although the actual commitment to Arctic Capabilities has been modest and some investments have been delayed in support of deployed operations.⁵⁴ As J.L. Granatstein observed, “The progress made by the Harper government seems to be slipping away.”⁵⁵ Still, it must be noted that great strides in the military capability have been made particularly in the renewal of Air Mobility fleets that are so critical to operations in the North.

Canada’s Northern Strategy, 2009

Canada’s Northern Strategy builds upon the Arctic sovereignty and security domains that are a fundamental theme of the CFDS. A more robust Canadian Forces footprint in the Arctic is articulated in Canada’s Northern Strategy as expressed through the Government of Canada’s

⁵² *Ibid.* 19.

⁵³ P. Whitney Lackenbauer, “From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World,” *Foreign Policy for Canada’s Tomorrow*, no.3 (Toronto: Canadian International Council, 2009): 12-13.

⁵⁴ Paal Sigurd Hilde, “The ”new” Arctic – the Military Dimension”, *Journal of Military and Strategic Studies* 15, no. 2 (2013): 135-136, <http://jmss.org/jmss/index.php/jmss/article/view/531>

⁵⁵ J.L. Granatstein, “The Harper Government and Defence After Four Years,” A Paper Presented at the Conference of Defence Associations Conference in Ottawa, March 4, 2010, (Calgary: Canadian Defence & Foreign Affairs Institute, March 2010), 2-3.

“clear vision for the North, in which: ... we patrol and protect our territory through enhanced presence on the land, in the sea and over the skies of the Arctic.”⁵⁶ Furthermore, the policy explicitly states that “exercising our Arctic Sovereignty” is one of the four priorities of the integrated Northern Strategy.⁵⁷ As part of Canada’s Northern Strategy, exercising sovereignty is framed within the context of having the capability to ensure land, sea, and air domain awareness, maintain a strong visible presence, and the ability to conduct the missions as set out in the CFDS throughout the Arctic. This policy reinforces the political priority on the Arctic and serves as a vector check for the Canadian Forces.⁵⁸ The message for the CAF is the government’s commitment to an integrated strategy for the north and the role that it will play. The policy is clear on the intent to have a comprehensive WOG approach to the North. The CAF figures prominently in the government’s policy in protecting Canada’s sovereignty and, due to unique capabilities, will be a key enabler for a WOG integrated response to a crisis in the Arctic.

Statement on Canada’s Arctic Foreign Policy, August 20th, 2010

The third key Arctic policy document tabled by the Harper Government is the Statement of Canada’s Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada’s Northern Strategy Abroad. Delivered in the summer of 2010 by the Minister of Foreign Affairs, it “is the key international dimension of the government’s integrated Northern Strategy.”⁵⁹ This document laid out the Government policy for the Arctic in terms of Exercising Sovereignty, Promoting

⁵⁶ Department of Aboriginal Affairs and Northern Development Canada, *Canada’s Northern Strategy. Our North, Our Heritage, Our Future* (Ottawa: Minister of Public Works and Government Services, 2009), 2.

⁵⁷ *Ibid.*

⁵⁸ Department of National Defence, *Canada First Defence Strategy* (Ottawa: Government of Canada, 2008), 3.

⁵⁹ Foreign Affairs, Trade and Development Canada, “Minister Cannon Releases Canada’s Arctic Foreign Policy Statement,” (No. 264 - August 20, 2010 – 12:15 p.m. ET), last accessed 1 June 14, <http://www.international.gc.ca/media/aff/news-communications/2010/264.aspx?lang=eng>.

Economic and Social Development, Protecting the Arctic Environment, Improving and Devolving Governance, and The Way Forward.

The CFDS and the Northern Strategy were made for the internal Canadian audience. Once these documents had been digested in the Canadian realm, the Arctic Foreign Policy was crafted for the international audience to affirm Canada's sovereignty over its vast Arctic territory. The document notes the historical foundation of sovereignty in the Arctic, current governance and stewardship responsibilities in exercising sovereignty, and signals a "clear statement about our Arctic foreign policy priorities and objectives as we prepare to assume the chair of the Arctic Council in 2013."⁶⁰

While this policy document expands on the view of sovereignty to include governance, stewardship, and the human dimension, it also acknowledges the safety and security aspect. The integrated approach mentioned in the Northern Strategy is expanded upon to illustrate the WOG approach to "putting the full resources of the Government of Canada behind the exercise of our sovereignty, sovereign rights and jurisdiction in the Arctic."⁶¹ Additionally, Canada's Arctic Foreign Policy Statement relates back to the CFDS and the "significant new commitments to allow Canada to better monitor, protect and patrol its Arctic land, sea, and sky to keep pace with changes in the region."⁶²

Summary

This chapter has provided a brief overview of the effects of global warming and its link to a renewed interest and urgent need for a comprehensive Canadian Arctic policy. While global

⁶⁰ *Ibid.*

⁶¹ Department of International Affairs and International Trade, "Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad," last accessed 2 December 2014, http://www.international.gc.ca/arctic-arctique/assets/pdfs/canada_arctic_foreign_policy-eng.pdf, 5.

⁶² *Ibid.*

warming is having an impact on the planet as a whole, the impacts are more pronounced in the Arctic especially with regards to greater accessibility. This has raised the potential for commercially lucrative shipping routes as well as commercial feasibility of the vast untapped natural resources of the region. The potential wealth in the Arctic is not solely in the domain of the Arctic nations as non-Arctic states and actors have taken notice as well. Such changes to the geopolitics of the region increase the threats to Canadian sovereignty, security, and safety.

The end of the Cold War meant that interest in the sovereignty and security concerns in the Arctic waned. It was not until the reality of global warming was accepted, and the implications for Arctic paradigm were recognized, that a renewed importance was placed on Canadian Arctic Policy. The shift can be seen in the International Policy Statement (2005) of the Martin Liberal Government, and carried through to the Harper Conservative Government with the CFDS (2008), Canada's Northern Strategy (2009), and the Statement on Canada's Arctic Foreign Policy. Through these various policy statements, the government has clearly articulated the expectations for the Canadian Forces as a key enabler of its Arctic policy.

Regardless of whether the CAF is leading a defence response or supporting other government departments, the RCAF can provide essential lift capability for projecting an integrated response. As will be shown in a later chapter, the strategic airlift capability of the CC-177 combined with the tactical and utility airlift capabilities of the CC-130J and CC-138 have the ability to deliver meaningful and timely Government of Canada effects throughout the vast expanse of the Canadian Arctic. Consequently, Air Mobility can play a critical role for the CAF in delivering on the implied expectations of these the policies.

CHAPTER 2 - POLICY IMPLICATIONS FOR THE CAF

Introduction

In addition to the CFDS, Canada's Northern Strategy also specifically addresses the importance of Arctic and the implications for the CAF. This keystone policy document underscores the importance of an integrated approach to the government's priorities in the North with the CAF being a key enabler in the exercise of Canadian sovereignty in the region.

The exercising of Canadian sovereignty, specifically in respect to Canada's Arctic, is expanded upon in Canada's Statement on Arctic Foreign Policy, where the role of the CAF is further defined. Combined together, these three policy documents – the CFDS, Canada's Northern Strategy, and Canada's Statement of Arctic foreign Policy – thus provide the explicit and implicit tasks that serve to inform and shape the Directive for the DND/CAF in Canada's North. They lay out the framework for the responsibilities assigned to the CAF and inform the mandate for the CAF in the Arctic. Through an examination of these policy documents, this chapter will distill the overarching guidance into the explicit and implicit tasks for the CAF in which the essential role for Air Mobility in supporting the Government of Canada's strategy for a WOG integrated approach to the North and sovereignty in the Arctic.

Guidance specifically addressing the North:

It is not sufficient that a state declares sovereignty, but it must also be able to act in a way that confirms to others that is able to exercise and enforce the responsibilities conferred in a declaration of sovereignty. Whitney Lackenbauer describes sovereignty as “a broad concept that encompasses the adoption and enforcement of laws and regulations, the adequate protection of the territory and borders, [and] all actions expected of a responsible government.”⁶³ Put

differently, sovereignty is the complete power and authority that a state exercises over its territory. Canadians rely upon the CAF to protect Canada's sovereignty; as one Privy Council Office document notes, "There can be no greater role, no more important obligation for a government, than the protection and safety of its citizens."⁶⁴ Threats to Canada's vast northern frontier are not necessarily conventional military threats (although there could be a case made with respect to the Russian aggression that has been playing out in 2014) but there are other threats to Canadian Arctic sovereignty. The North, although vast, desolate and an extremely harsh climate, is vulnerable to physical, environmental, and economic security threats.

Canada First Defence Strategy

The CFDS, as clearly stated in the title, places the home game at the forefront of the CAF's mandate. While the CAF plays supporting roles to various Other Government Departments and Agencies for most domestic issues, the responsibility of defence falls squarely in the CAF's domain. Canadians expect that their government's top priority is to protect them and keep them safe and the government relies on and charges the CAF to fulfill this obligation.⁶⁵ The roles of the CAF, as set out in the CFDS, are to defend Canada, contribute to the collective defence of North America, and provide security to Canadians through meaningful contribution and strong leadership abroad in support of international security.⁶⁶ The six core missions defined in the CFDS further define these broad roles for the CAF. Namely, the CAF must be able to:

⁶³ Lackenbauer lecture, "The Canadian North: Past, Present and Future," History 380 Final Lecture, slide 8, last accessed 2 October 2014, http://www.lackenbauer.ca/Hist380/PPT/11-climate_change-w14.pdf.

⁶⁴ Privy Council Office, *Securing an Open Society: Canada's National Security Policy* (Ottawa: Privy Council Office, 2004), viii.

⁶⁵ Department of National Defence, *Canada First Defence Strategy* (Ottawa: Government of Canada, 2008).

⁶⁶ Lieutenant-General (Ret'd) George MacDonald, "The Canada First Defence Strategy – One Year Later," Prepared for the Canadian Defence & Foreign Affairs Institute, October 2009, 1, last accessed 22 December 2014, <http://www.cdfai.org/PDF/The%20Canada%20First%20Defence%20Strategy%20-%20One%20Year%20Later.pdf>.

1. Conduct daily domestic and continental operations, including in the Arctic and through NORAD;
2. Support a major international event in Canada;
3. Respond to a major terrorist attack;
4. Support civilian authorities during a crisis in Canada such as a natural disaster;
5. Lead and / or conduct a major international operation for an extended period; and
6. Deploy forces in response to crises elsewhere in the world for shorter periods.⁶⁷

The CFDS dictates that the CAF must be able to conduct all of these missions globally and at times simultaneously, but with an emphasis of delivering on the no fail mission of protecting Canadians at home and defending Canada and North America.

In the CFDS specific guidance is given to the DND with the Canadian North as a priority, emphasizing the role of the CAF to defend Canada and North America.⁶⁸ Also, three of the six core missions defined for the CAF have explicit tasks that are applicable to the North.⁶⁹

The CFDS not only implies that the CAF must be able to operate throughout Canada, plus the Arctic; it specifically mentions that the CAF must conduct daily domestic operations, which includes this region. More importantly, it directs that CAF will contribute to Canada's sovereignty in the Arctic through a visible presence and have the capability defend this vital piece of the Canadian identity. The requirement is more than just an acknowledgement to the North. There are clear and present threats to Canada that are not confined to the southern more densely inhabited regions of the country. Therefore, the CAF must be able conduct operations to address these threats throughout the entire country, including the vast expanse of Canada's Arctic, to assure Canadian sovereignty.⁷⁰

⁶⁷ *Ibid*, 10.

⁶⁸ Rear Admiral Nils Wang, "Arctic Security – An Equation with Multiple Unknowns," *Journal of Military and Strategic Studies* 15, no. 2 (2013): 21, <http://jmss.org/jmss/index.php/jmss/article/view/531>

⁶⁹ These are:

- a. Conduct daily domestic and continental operations, including in the Arctic and through NORAD;
- b. Respond to a major terrorist attack; and
- c. Support civilian authorities during a crisis in Canada such as a natural disaster.

In order for the government of Canada to meet its obligations to Canadians, especially those in the North, Canada must be able to exercise sovereignty over its Arctic territory. Therefore, the CAF must have freedom of movement throughout the country; and not so much in the sense of restriction of movement due to a traditional adversary, but due to the sparse population and the minimal infrastructure throughout the far reaches of the region. The CAF's conduct of operations must not be restricted to the south where there is well-established infrastructure. CAF presence throughout the Arctic is an essential component of exercising sovereignty in the north and it must operate throughout the Arctic in order to deter, detect, and defend against any threats to Canadian sovereignty.⁷¹ However, the lack of infrastructure and the enormous distances across the vast expanse of the Canadian North will prove to be a great obstacle. The CAF is a relatively small force and the challenge lies in its ability to project a meaningful response over such a great area in a timely manner.⁷² Air Mobility will be an invaluable resource as a force multiplier and will be a fundamental enabler for the CAF to meet this mandate. According to Lieutenant-General (ret) George MacDonald, "An enduring requirement for employing military capability in the North, and supporting other government departments and agencies, is air transport."⁷³

Some dismiss the notion of a threat to Canada manifesting in the Arctic as extremely unlikely and alarmist. Kyle Christensen notes that "... the Arctic exhibits some of the harshest

⁷⁰ Department of National Defence, *Canada First Defence Strategy*, (Ottawa: Government of Canada, 2008), 7-8; Department of National Defence, *Arctic Integrating Concept* (Winnipeg: 17 Wg Publishing Office, 2010), 45-46.

⁷¹ Rob Huebert, "Canada and the Changing International Arctic: At the Crossroads of Cooperation and Conflict," 22, last accessed 22 December 2014, <http://irpp.org/wp-content/uploads/2008/09/huebert.pdf>.

⁷² Department of National Defence, *Arctic Integrating Concept* (Winnipeg: 17 Wg Publishing Office, 2010), 41.

⁷³ George Macdonald, "Force Requirements (Air)" in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 112. LGen (ret) McDonald is former Deputy Commander-in-Chief of NORAD and Vice-Chief of the Defence Staff.

conditions on the planet, and the likelihood of any potential adversary entering Canada in this way and posing a credible threat is considered remote and unlikely.”⁷⁴ This position must be reconsidered for two reasons. Firstly, the notion of a threat in terms of an armed adversary is far too narrow view when considering “threats” to a nation through a more holistic lens. Secondly, with the backdrop of climate change, in the post 9/11 world and recent overt Russian expansionist aspirations, Canada cannot discount such a threat.

The effect of climate change can be seen as a catalyst for threats to Canada’s Arctic on several fronts. Climate change has had and will continue to have a profound effect on the Arctic and Canada’s sovereignty. As noted earlier, the Arctic has become more accessible with the onset of ice-free summers in Arctic waters. The threat to Canada’s environment can be forecast as shipping operators look to capitalize on the potential of the North West Passage and the booming eco-tourism industry.⁷⁵ Operators of non-ice-strengthened vessels pose the risk of an environmental disaster should they run aground due to unpredictable Arctic weather or incomplete and outdated navigation charts.⁷⁶ Pollution and inadvertent introduction of new species to the fragile Northern ecosystems are just two of many scenarios that threaten Canadian sovereignty in the North. The Canadian government endeavours to mitigate this threat through regulation; however, for regulations to be effective, they must be enforced and to ensure this the Canadian government must have a credible presence.⁷⁷

⁷⁴ Kyle D. Christensen, *Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges* (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2005), 45.

⁷⁵ P. Dittmann, “In Defence of Defence: Canadian Arctic Sovereignty and Security,” (Master of Defence research project, Canadian Forces College, 2008), 45.

⁷⁶ Office of the Auditor General of Canada, *Report of the Commissioner of the Environment and Sustainable Development - Chapter 3 Marine Navigation in the Canadian Arctic*, (Ottawa: Public Works and Government Services, 2014), 6.

⁷⁷ P. Whitney Lackenbauer and W. A. March, “Introduction” in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force’s Experience in*

In addition to the environmental threat, there is the very plausible scenario of tourists being stranded in the Canadian Arctic. A tourist ship running aground would pose a challenge across multiple government departments and agencies such as – the Canadian Border Services Agency, Public Safety, Parks Canada, the Canadian Coast Guard, and the CAF. Such a scenario was played out during Operation Nanook 2014 where a portion of the exercise was based on the response to a simulated eco-tourism cruise ship that ran aground in the Canadian North.⁷⁸ This scenario is not an unlikely possibility constructed by military exercise planners. In 2010, two ships ran aground in the Canadian Arctic. In the first instance, the cruise ship *Clipper Adventurer* ran aground in Coronation Gulf, NU and the Coast Guard was called upon to rescue the 128 passengers onboard.⁷⁹ Also in 2010, the *Nanny*, a tanker carrying 9.5 million litres of diesel, ran aground in the North West Passage.⁸⁰

In the past, the Arctic was viewed as possessing an inherent deterrent with its harsh climate and vast expanses devoid of the infrastructure found in the southern regions of Canada.⁸¹ For these reasons it had been easy to become complacent or not have a sense of urgency with respect to developing a response capability in the North. However, the paradigm has shifted with

the Arctic, ed. P. Whitney Lackenbauer and W.A. March, (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), xi.

⁷⁸ National Defence and the Canadian Armed Forces, “Operation NANOOK,” last accessed 8 October 2014, <http://www.forces.gc.ca/en/operations-canada-north-america-recurring/op-nanook.page>. Operation Nanook is an annual exercise and sovereignty operation in Canada’s North:

- To assert Canada’s sovereignty over its northernmost regions;
- To enhance the CAF’s ability to operate in Arctic conditions;
- To improve coordination in whole-of-government operations; and
- To maintain interoperability with mission partners for maximum effectiveness in response to safety and security issues in the North.

⁷⁹ Canadian Broadcasting Corporation (CBC) News, “Coast Guard Seeks Damages for Arctic Cruise Ship Accident. Clipper Adventurer Hit Uncharted Sand Bar in 2010,” last updated 20 June 2012, <http://www.cbc.ca/news/canada/north/story/2012/06/19/north-coast-guard-clipper-adventurer-damages.html>.

⁸⁰ Canadian Broadcasting Corporation (CBC) News, “Grounded Arctic Tanker Tries to Lighten Load,” last updated 13 September 2010, <http://www.cbc.ca/news/canada/north/story/2010/09/13/nwpassage-tanker-refloat.html>.

⁸¹ Kyle D. Christensen, *Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges* (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2005), 45.

the advent of a more accessible Arctic, and the notion of terrorist organizations trying to secure access to North America through the region cannot be dismissed. Robert Huebert suggests that while the Arctic is currently a less likely point of entry than southern access points, this risk must still be acknowledged: “Because of Canada’s limited surveillance capability in the Arctic, it is impossible to know for certain who is in the Canadian north. Thus, if all other entry points to North America are sealed, the Arctic could become a possible entry point.”⁸² His reasoning is that if the southern access points are well secured the logical step is to exploit any gaps that may exist around the continent. At first blush, the complexity of gaining access to North America through the Arctic may seem impractical; however, terrorist organizations have become more strategic and are willing to commit the resources necessary for longer-term goals. As Huebert notes further, “While no one is expecting an immediate attack from Inuvik by al Qaeda, potential dangers do exist in the long term.”⁸³ The threat is real, with factual examples noted by the Standing Senate Committee on National Security and Defence:

- An aircraft allegedly owned by Al-Qaeda stopped over in Iqaluit in 1993;
- A Russian four-engine jet transport landed in Churchill, Manitoba in 1998, was not met by Canadian officials, remained a short while, loaded a helicopter on board, then departed [Churchill is not technically in the Arctic];
- A Chinese icebreaking research ship arrived in Tuktoyaktuk, NWT, in 1999, surprising Canadian officials;
- A deported Romanian convicted criminal re-entered Canada in 2006 by motorboat from Greenland;
- Turkish sailors jumped ship in Churchill, Manitoba, in 2006;
- And in 2007, a group of adventurers was arrested in Nunavut while trying to transit the Northwest Passage, after failing to report their presence to Canadian immigration officials and misleading the RCMP by hiding a crew member.

⁸² Robert Huebert, “Northern Interests and Canadian Foreign Policy,” 22, last accessed 2 October 2014, <http://www.cdfai.org/PDF/Northern%20Interests%20and%20Canadian%20Foreign%20Policy.pdf>.

⁸³ Robert Huebert, “Renaissance in Canadian Arctic Security?,” *Canadian Military Journal* 6, no. 4 (Winter 2005-2006): 17-29, <http://www.journal.forces.gc.ca/vo6/no4/north-nord-eng.asp>.

Two witnesses told the Committee about the same and similar incidents. Col (Ret'd) Pierre Leblanc, who headed the military's Joint Task Force (North) from 1995 to 2000, said he received many reports of illegal activity from the Canadian Rangers, for example about Inuit from Greenland bringing American tourists to Ellesmere Island by snowmobile to hunt polar bears. "You can imagine," he said, "the number of Canadian laws that were broken—weapons, vehicles, immigration, hunting endangered species. They were also reporting illegal fishing in our waters off the northern part of Baffin Island."

We also heard from Charlie Lyall, President and CEO of Kitikmeot Corporation, who said, "... a man came to Grise Fiord in an 18-foot Lund, and I believe a couple of gang members were arrested on Victoria Island after they came across the Northwest Passage. Yes it is a concern, right down to the people coming into the country illegally. Being an ex-policeman, I can see that it would not be a problem for drug smuggling to start in the North and work its way south."⁸⁴

The expected peace dividend after the end of the Cold War failed to materialize because other hotspots throughout the world and the tragic events of 9/11 quickly brought about the realization that peace was not breaking out. As the West focused on the new emerging threat of extremist terrorist organizations, Russia has been quietly laying the foundation for a new expansionist agenda. Recent actions in Ukraine have renewed concern over Russian aggression and the need to defend Canadian sovereignty in the Arctic.⁸⁵ Canadian Prime Minister Stephen Harper spoke to this point on his annual visit to Canada's North. "In Europe, we see the imperial ambitions of Vladimir Putin, who seems determined that, for Russia's neighbours, there shall be no peace....," Harper said. "And because Russia is also Canada's neighbour, we must not be complacent here at home."⁸⁶

⁸⁴ Standing Senate Committee on National Security and Defence, *Sovereignty and Security in Canada's Arctic – Interim Report – Special Study on the National Security and Defence Policies of Canada* (Ottawa: Government of Canada, March 2011), 29.

⁸⁵ CBC News, "Stephen Harper concerned by Russia's growing military presence in Arctic," last updated 22 August 2014, <http://www.cbc.ca/news/politics/stephen-harper-concerned-by-russia-s-growing-military-presence-in-arctic-1.2744499>.

⁸⁶ Canadian Broadcasting Corporation (CBC) News, "Stephen Harper raises spectre of Russian threat in Arctic speech to troops," last updated 26 August 2014, <http://www.cbc.ca/news/politics/stephen-harper-raises-spectre-of-russian-threat-in-arctic-speech-to-troops-1.2747703>.

Additionally, there are other asymmetric threat vectors that have the potential to exploit and threaten Canada through the less secure borders of the Arctic. There is a growing concern with the economic, environmental, and social threats to the region. Trans-national criminal organizations will take advantage of any perceived vulnerability. The vast resources of the North, such as the developing diamond mine industry, will be a draw to organized crime. Long, unpatrolled coastal borders have the potential to serve as drop off points for increasingly complex human and drug smuggling operations. Although the primary responsibility of these concerns does not lie with the DND, the CAF can be expected to play a major supporting role. The challenges of addressing these threats will require the unique capabilities of the CAF as part of a WOG integrated approach.⁸⁷

The CFDS outlines the high-level expectations of the government for the DND and CAF. This policy explicitly directs the CAF to defend Canadian sovereignty and clearly speaks to the inclusion of the Arctic. Whitney Lackenbauer agrees that a Canada First strategy is relative; however, he frames this in a context for a WOG integrated approach. He states:

There is no conventional military threat to our Far North, nor will Canada solve its boundary disputes with the force of arms. We need to invest in military capabilities so that the CF can operate in all parts of the country and play a supporting role to civil authorities, particularly the Canadian Coast Guard (CCG) and the RCMP.⁸⁸

In order to meet this critical mandate, the CAF must be able to provide a credible and timely response anywhere in Canada. While the southern regions of Canada have well-established infrastructure to support a CAF deployment and operations, the ability of the CAF to meet the

⁸⁷ Robert Huebert, "Renaissance in Canadian Arctic Security?," *Canadian Military Journal* 6, no. 4 (Winter 2005-2006): 17-29, <http://www.journal.forces.gc.ca/vo6/no4/north-nord-eng.asp>.

⁸⁸ P. Whitney Lackenbauer, "From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World," *Foreign Policy for Canada's Tomorrow*, no.3 (Toronto: Canadian International Council, 2009): 20.

expectations in the North is challenging. The vast distances and the sparsely populated expanse of the Canadian Arctic do not provide the infrastructure that allows for a rapid deployment and response by the Canadian Forces.⁸⁹ In order to overcome this obstacle to delivering the *raison d'etre* of the organization, the CAF must possess organic capabilities that will allow it to deploy anywhere in Canada and operate independently in the austere conditions.⁹⁰ This requirement speaks to the need for a robust capability for moving troops and equipment to where they are needed, and Air Mobility will be crucial for the CAF to deliver the effect. A potential Air Mobility solution to enable a rapid deployment from the south will be described in chapter four.

Canada's Northern Strategy

Following the 2008 CFDS, the Harper Government further advanced its Arctic agenda with the publication of Canada's Northern Strategy. While the CFDS was a comprehensive policy specifically for the DND and the CAF, Canada's Northern Strategy was a policy document specifically crafted for the whole-of-government approach to the North. It serves as the framework for the government's vision for the Arctic and how the DND and other government departments and agencies will coordinate their efforts to achieve this vision "by delivering an integrated Northern Strategy based on four equally important and mutually reinforcing priorities." Specifically, the document indicates that these policies are:

- Exercising our Arctic Sovereignty
- Promoting Social and Economic Development
- Protecting the Arctic Environment

⁸⁹ Department of National Defence, *Arctic Integrating Concept* (Winnipeg: 17 Wg Publishing Office, 2010), 45.

⁹⁰ From NATO glossary of terms and definitions, organic is defined as forming an integral part of a military organization.

- Improving and Devolving Northern Governance.⁹¹

The CAF have a central role to play as part of the WOG integrated approach to Canada's Northern Strategy and Air Mobility will be relied upon to deliver CAF's contribution. Regardless of which department has the lead for the integrated response, airlift will almost certainly be one of the unique and specialized functions (in terms of Air Mobility to austere locations in extreme conditions) that the CAF will be called upon to provide. Details of this essential capability are described in Chapter 4.

Canadian Arctic policy highlights the need for the CAF to have a presence through operations throughout the North. The impetus is not only to accomplish the defence role but also to support other government departments and agencies. Canada's Northern Strategy sets out to assert Canadian sovereignty in the North through the maintenance of a strong presence, thereby defining the Arctic as Canada's domain. This priority is a reflection of Prime Minister Harper's drive to reinforce the Arctic's place as an undisputable piece of the national fabric. During his announcement in July 2007 of the government's plan to build Arctic / Offshore Patrol Ships, Prime Minister Harper foreshadowed the policies that his government would be underwriting. Canada's Northern Strategy delivers on Prime Minister Harper's "use it or lose it" strategic message (see above, page 16) by directing enhanced presence to patrol and protect the land, sea, and air of Canada's North. Commentator Michael Byers sees challenges in the implementation of the policy due to the cancellation or delays of key Arctic sovereignty initiatives. He told CBC news:

One really has to question the validity of this Northern Strategy document as a snapshot of what the government is actually doing, if we have these contradicting

⁹¹ Department of Aboriginal Affairs and Northern Development Canada, *Canada's Northern Strategy. Our North, Our Heritage, Our Future* (Ottawa: Minister of Public Works and Government Services, 2009), 2.

reports that suggest that some of the big-ticket items and the high-profile promises made in the last few years are actually in a state of suspension today.⁹²

However, the Northern Strategy captures previous government promises into one document and provides the framework for an integrated government approach to Northern sovereignty issues. It conveys the strategic vision to guide the longer-term programmes in the North as well as some near term objectives.⁹³ As such, the policy should not be measured against discrete initiatives but on the broader effects achieved.

Canada's Northern Strategy is the government's implementation of a comprehensive response in the Arctic. It describes the integrated WOG approach of living up to the responsibilities of exercising sovereignty over Canada's Arctic domain. Other government departments and agencies will lead the key initiatives to advance the priorities of this policy but there will be a requirement for support across a number of departments for a coordinated and coherent implementation. Although not the lead government department, DND will provide a significant contribution. The unique military capabilities and the ability to deploy and sustain operations from austere locations will be necessary for the government to achieve its goals. The large area of responsibility, combined with a sparse population and limited infrastructure, will prove challenging; the reach of the RCAF's Air Mobility capability will act as force multiplier and enabler for a robust response by maximizing the efficiency and effect of the government's finite resources.⁹⁴

Canada's Statement on Arctic Foreign Policy

⁹² CBC News, "Arctic expert questions Canada's northern strategy," last updated 28 July 2009, <http://www.cbc.ca/news/canada/north/arctic-expert-questions-canada-s-northern-strategy-1.798554>.

⁹³ Department of Aboriginal Affairs and Northern Development Canada, *Canada's Northern Strategy. Our North, Our Heritage, Our Future* (Ottawa: Minister of Public Works and Government Services, 2009), 2, 11.

⁹⁴ The Canadian Forces Aerospace Warfare Centre, *Projecting Power: Canada's Air Force 2035* (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2009), 44.

In 2010, the Harper Government released the next policy piece of its Northern agenda - Canada's Statement on Arctic Foreign Policy. This document expands upon the integrated approach to "putting the full resources of the Government of Canada behind the exercise of our sovereignty, sovereign rights and jurisdiction in the Arctic."⁹⁵ Canada's Statement of Arctic Foreign Policy puts out a clear strategic message reinforcing a comprehensive government response to any who might question the government's resolve with respect to exercising Arctic sovereignty. The policy addresses the government's engagement in the Arctic as testimony to the governance and stewardship responsibilities of its jurisdiction over the North. The broad span of activities undertaken by the various departments range from social and economic development to Arctic science and research, environmental protection, and enforcement of Canadian laws and regulations as well as the operations of the CAF.⁹⁶ The CAF will be pivotal in supporting and enabling the comprehensive Government of Canada mandate.

The DND and the CAF primarily contribute to the sovereignty pillar. The specific mandate for the CAF to support of this policy is to provide a visible presence in the region in order to deter, detect, and defend the North. This role must not be viewed in a strictly military sense such as defending the North from an invading force, but must be applied more broadly to include environmental, safety, and other threats (which belong to other government departments and agencies for the lead role but for which the CAF is implicated in the government's integrated approach to the North).

The WOG approach will rely heavily upon the unique capabilities and experience of the CAF. In order to exercise all aspects of sovereignty throughout Canada's North (and not just the

⁹⁵ Department of International Affairs and International Trade, "Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad," 5, last accessed 2 December 2014, http://www.international.gc.ca/arctic-arctique/assets/pdfs/canada_arctic_foreign_policy-eng.pdf.

⁹⁶ *Ibid.*

defence aspect), co-operation and mutual support between government departments and agencies is an essential ingredient to an affordable solution. Canada cannot afford to have strategic and operational level capabilities duplicated across departments. Hence, critical enablers for the CAF, particularly Air Mobility, will be required to support other government departments and agencies in demonstrating Canada's commitment and resolve in exercising sovereignty in the North. A WOG approach, drawing on the resources across all departments, will be necessary to back policy with action: "Canada is in control of its Arctic lands and waters and takes its stewardship role and responsibilities seriously... When positions or actions are taken by others that affect our national interests ... we respond."⁹⁷ Air mobility will be the capability that enables this response.

CDS/DM DIRECTIVE FOR THE DND/CF IN CANADA'S NORTH

The overarching policy documents provide the framework of the Government of Canada agenda for the North. The CFDS, with its emphasis on the home game (including the Canadian Arctic), Canada's Northern Strategy, and Canada's Statement on Arctic Foreign Policy define the Government of Canada's expectation for the DND and the CAF. The policy guidance is translated into orders by the Chief of Defence Staff (CDS) and the Deputy Minister (DM) of National Defence in the CDS/DM DIRECTIVE FOR THE DND/CF IN CANADA'S NORTH. The directive sets the course for the DND and the CAF to support the government's integrated approach for its Arctic agenda. It specifically directs that the DND and the CAF "will leverage its capabilities in order to demonstrate sovereignty, enhance presence and help ensure the security of Canada's Northern regions while concurrently improving its abilities to respond to crises and aid other government departments and agencies in fulfilling their mandates." The

⁹⁷ *Ibid*, 27.

mission statement of the directive asserts that, “The CF will employ joint capabilities in Canada’s North to support the GoC [Government of Canada] in achieving its national objectives for the region.”⁹⁸

The directive acknowledges the fact that the military primarily contributes to the sovereignty pillar and that other government departments and agencies retain the majority of the security responses in the North; however, the CAF will play an important role through the provision of capabilities in supporting other government departments and agencies in fulfilling their mandates. The CAF is addressing its role as the primary stakeholder of the sovereignty pillar through the implementation of the CFDS. The main effort for the CAF’s contribution to Canadian Arctic Sovereignty will be through a more visible presence and the capability to provide a credible response throughout the North.⁹⁹

In order to meet the objective laid out in the Government of Canada policies for the North, the CDS’ intent for the CAF is to deliver on the CFDS, by increasing presence and patrols to demonstrate Canadian Arctic sovereignty. Additionally, the CAF will need to establish capabilities to provide a credible and timely response to safety, security, and disaster events in the North, either as the lead agency or as a reliable partner in the delivery of a WOG effect. This concept is captured in the strategic objectives of the directive, namely to exercise Canada’s sovereignty in the North through the monitoring and surveillance of Canadian territory in the North by providing a visible presence. Arctic sovereignty confers the responsibility of providing security to the inhabitants of the region.¹⁰⁰ Given the limited resources, the relatively small size

⁹⁸ Department of National Defence, CDS/DM DIRECTIVE FOR THE DND/CF IN CANADA’S NORTH, (Ottawa: Department of National Defence, 12 April 2011), 1.

⁹⁹ *Ibid*, 4.

¹⁰⁰ *Ibid*, 8-9.

of the Canadian military, and the extremely large area of responsibility, Air Mobility will be an essential force multiplier to enable the CAF to achieve the intent of the CDS and Deputy Minister.

The CDS / DM Directive is designed to contribute to the sovereignty of Canada's Arctic. In order for DND / CAF to support this strategic objective, the CAF must be able to monitor and control the approaches in the North, and support other government departments and agencies in providing appropriate responses, thereby meeting the Government of Canada's obligations to its assertion of sovereignty.

The directive to the CAF is to realize these objectives through the conduct of operations. Specifically, the directive states that the CAF will:

- a. Leverage its capabilities for Northern operations in order to exercise sovereignty and contribute to the safety and security of Canada's Northern region;
- b. Improve its ability to effectively command contingency operations in the North;
- c. Increase its ability to conduct surveillance and attain a high degree of terrestrial, maritime and airspace situational awareness in the North;
- d. Increase the frequency and size of routine deployments into the North; and
- e. Create the capability and capacity to surge and sustain appropriate force packages into this region during contingency or crisis operations.¹⁰¹

Canada Command was given the task to operationalize these objectives and develop a campaign plan for the North to meet the intent of this directive in achieving the goals of the Government of Canada policies. Additionally, Canadian Operational Support Command was tasked with providing support to CAF operations in the North. These tasks are now the responsibility of

¹⁰¹ *Ibid*, 11.

Canadian Joint Operations Command (CJOC).¹⁰² A cornerstone task from this directive is for CJOC to develop contingency plans to support operations throughout the region.

The essential capability, at the core of this mandate, is the ability to provide a meaningful and timely response; this will require the CAF to have access to robust lines of communication. Due to the vast distances and limited to non-existent infrastructure to support such an undertaking, the CAF will need to have an organic capability to project the response. To meet the need, the RCAF, and Air Mobility in particular, will be the only option to deliver and sustain the response.

The Arctic represents over 40% of the entire Canadian land mass. It is sparsely populated and has very limited infrastructure. To overcome the challenges presented in the time and space context, the CAF requires an organic capability to provide mobility over large distances and in austere conditions; Air Mobility provides this capability. Even in the southern regions of the country where there is well developed infrastructure, Air Mobility is often required to cover the great distances from the physical location of the response resources to where they are needed. The most robust response is of no value if it is in garrison with no means of deploying to the area of operations in a suitable amount of time to deliver the desired effect. For responses to the North, Air Mobility is the only sure option for critical domestic operations.¹⁰³

Summary

The CFDS set out the government's expectations for the CAF within a framework of three roles and six missions. The emphasis of the policy is on the home game with specific

¹⁰² Canadian Joint Operations Command (CJOC) was stood up on 5 October 2012 and replaced Canada Command, Canadian Operational Support Command, and Canadian Expeditionary Force Command. CJOC is responsible for all CAF operations, domestic and expeditionary; any responsibilities of the three former commands now fall under CJOC.

¹⁰³ P. Whitney Lackenbauer, "From Above: The Royal Canadian Air Force and the Evolving Arctic Security Environment," *Airforce Magazine* 37, no. 4 (2014): 7.

guidance that clearly makes the North a priority. The government's priority on its Northern agenda remained at the forefront of domestic policy and a WOG approach to North was directed in the Canada's Northern Strategy document. Although other government departments and agencies will be the lead for most domestic responses, including those in the North, the CAF will have a central role to play in providing support to the implementation of this policy. The focus on Arctic policy continued with Canada's Statement on Arctic Foreign Policy, which expanded upon the WOG approach to the North and reinforced Canada's position on Arctic sovereignty. While the CAF contribute primarily to the sovereignty pillar of the government's integrated approach to the north, other government departments and agencies will rely heavily upon the unique capabilities and experience of the CAF. Air mobility in the harsh and austere conditions of the Canadian Arctic will be a cornerstone of this contribution and essential to the success of these policies.

The efforts of the DND and the CAF, in particular, were focused on this integrated approach through the explicit orders given in the CDS/DM DIRECTIVE FOR THE DND/CF IN CANADA'S NORTH. The common thread for each of the various organizations is the exercising of Arctic sovereignty through meaningful and timely integrated response. Given the vast distances, austere conditions and lack of infrastructure connecting the response capabilities in the southern regions of Canada to the Arctic, Air Mobility is essential to achieving the intent of the CDS/DM Directive and ultimately being an effective partner in the government's integrated strategy for the North. The next chapter will describe the gap between the policy implications noted in this chapter and the CAF's current Northern footprint.

CHAPTER 3 – GAPS IN THE CAF’S NORTHERN FOOTPRINT

Introduction

The size of the CAF is very small in relation to the size of Canada, even if the sparsely populated North is excluded. This results in gaps in the CAF’s Northern footprint and its ability to project a meaningful and timely response throughout the Arctic whether as the lead of a defence task response or in support of other government departments and agencies.¹⁰⁴ The widely dispersed and sparse population of Canada’s Arctic Region will require robust lines of communication if the CAF is to deliver on the expectations of Canadian Arctic policy.

The sparse inhabitation and the remote locations of communities in the North infer that there is very limited infrastructure which may not have sufficient capacity to support CAF operations. Support from in place infrastructure and the local economy cannot be assumed or assured as it is in the south. In many respects, the challenges of operating in the North are similar to an expeditionary deployment such as the mission in Afghanistan. In the context of this study, operations in the North must take into consideration that:

- commercial communication bandwidth may not be able to support CAF needs;
- the economy may not be able to support real life support requirements of the response;
- not all airfields can support strategic airlift; and
- the area of operations may not be co-located with an airfield.¹⁰⁵

This chapter will be developed along three closely related threads. The issue of lines of communications will be discussed in terms of the widely dispersed and sparse population, the limited infrastructure in place to support CAF operations, and the challenges of sustainment of

¹⁰⁴ Tony Balasevicius, “Toward a Canadian Forces Arctic Operating Concept,” *Canadian Military Journal* 11, no. 2 (Spring 2011): 27, <http://www.journal.forces.gc.ca/vo11/no2/doc/05-balasevicius-eng.pdf>.

¹⁰⁵ Imaituk Inc., “A Matter of Survival – Arctic Communications Infrastructure in the 21st Century,” 30 April 2011, 57-63, available at http://www.aciareport.ca/resources/acia_full-v1.pdf; P. Whitney Lackenbauer, “From Above: The Royal Canadian Air Force and the Evolving Arctic Security Environment,” *Airforce Magazine* 37, no. 4 (2014): 8; Department of National Defence, *DRDC-CORA TM 2010-170, Modeling and analysis of Canadian Forces RSOM hub for Northern Operations* (Ottawa: DND Canada, 2010), 5.

operations in the Canadian Arctic. The chapter will note the RCAF's historical ties to Arctic operations and then highlight the current gaps. This will set the stage for the next chapter which will describe an achievable course of action where Air Mobility figures prominently in the government's integrated approach to Arctic sovereignty.

RCAF History in the North

The RCAF is no stranger to operating in the north or conducting expeditionary operations. Its expeditionary heritage will serve it well in the Arctic as Northern operations, although within the domestic area of operations, are akin to expeditionary due to the vast distances, harsh climate and austere conditions.¹⁰⁶ Any response to the Arctic will involve a deployment of capability (whether CAF or other government department) from the south. Due to the distance and the lack of ground transportation infrastructure connecting the southern based capabilities to the Arctic (not to mention the extreme distances), the projection of a government of Canada response will not be unlike an expeditionary deployment outside of Canada utilizing the RCAF's Air Mobility capability. As Prime Minister Harper remarked after the First Air plane crash at Resolute Bay in 2010, "Part of the drill here is how quickly things can be moved up here and deployed from the south as well... There is no possible way in the vastness of the Canadian Arctic we could ever have all of the resources necessary close by."¹⁰⁷ This has been a longstanding challenge.

¹⁰⁶ Anneta Lytvynenko, "Arctic Sovereignty Policy Review," Prepared for the Ad Hoc Committee of Deputy Ministers on the Arctic, (Ottawa: 5 April 2011), 14; Lieutenant-General Ken Penny, "Transforming Canada's Air Force: Vectors for the Future," *Canadian Military Journal* 5, no. 4 (Winter 2004-2005): 43, <http://www.journal.forces.gc.ca/vo5/no4/doc/5-4-07-eng.pdf>.

¹⁰⁷ Mike De Souza, "Harper says full protection of Arctic impossible," Postmedia News, Nunatsiaq Online, 23 August 2010, last accessed 14 December 2014, http://www.nunatsiaqonline.ca/stories/article/65674harper_says_full_protection_of_arctic_impossible/.

Early in RCAF history, aircraft operations opened up possibilities to gaining access to remote locations in Canada's North. The Air Force first considered operations in the Arctic in the early 1920s. To test the feasibility of operating in such an austere location, the air force brass sent Squadron Leader Robert Archibald Logan as an observer on a Canadian Coast Guard Ship in 1922. His report showed great insight in the importance of being able to operate in the Arctic: "[T]he development of the Arctic and sub-Arctic flying is of the greatest importance, not to Canada alone, but the British Empire as a whole."¹⁰⁸ Logan had great vision with respect to flying in the Arctic and noted that even if the chance of a war with Russia was unlikely, that this "should not affect the determination to develop flying in the Canadian Arctic and sub-Arctic regions because Canada, if it considers itself worthy to be called a nation, should have enough pride and spirit to take at least ordinary precautions and be prepared to defend itself in any emergency."¹⁰⁹ The RCAF's first expedition into the Arctic was in 1927 to determine the viability of shipping routes from Churchill to the Atlantic Ocean through the Hudson Strait. The RCAF had experience in winter flying, but this expedition would be the first in the harsh Arctic conditions. The experience gained from this operation serve as a foundation for RCAF Arctic operations. In particular, navigation techniques were developed for areas where magnetic compasses were unreliable and communications systems were established to support air operations. Additionally, this expedition established the expeditionary nature of Northern operations.¹¹⁰ From this first foray into the North the importance of the RCAF's ability to be able to operate in this great frontier was apparent. As experience was slowly gained, the need for a

¹⁰⁸ Robert A. Logan, "Air Board, CAF, RCAF," Canadian War Museum Paper No. 2, (Ottawa: August 1972), 80.

¹⁰⁹ *Ibid.*

¹¹⁰ Ernest Cable, "Air Force: Leader in the Arctic" in P. W. Lackenbauer and W.A. March, eds., *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force's Experience in the Arctic* (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), 3-7.

deliberate campaign to raise the awareness of military flying operations in the Arctic was acknowledged.¹¹¹

Immediately after the Second World War, the RCAF activity in the north consisted of aerial mapping missions that were closely tied to several combined Canada – U.S. programmes.¹¹² Geography and the chilling post-war relationship between the U.S. and Russia left Canada and the Canadian Arctic “sandwiched between two increasingly hostile superpowers.”¹¹³ The decades-old relationship of cooperation between the Canada and the U.S. and the mutual benefits of a combined defence of North America ultimately led to the establishment of the North American Aerospace Defence Command (NORAD) in 1957.¹¹⁴ During this period, RCAF aircraft also played a significant role in aerial reconnaissance and special ‘Weather Reconnaissance’ flights. These special flights were in fact atmospheric sampling missions to monitor the Soviet Nuclear programme.¹¹⁵ Aerial intelligence missions were expanded to include electronic intelligence gathering and continued into the 1960s. These early missions developed the RCAF experience of Northern operations that enabled the next bound of an increased military presence in the Arctic.¹¹⁶

Air Mobility provided constant support to CAF operations. Most notably has been the enduring re-supply of CFS Alert at the Northern tip of Ellesmere Island. Initially re-supply was

¹¹¹ Richard Goette, “The *Roundel* and Building RCAF Arctic Airmindedness During the Early Cold War,” in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force’s Experience in the Arctic*, ed. P. Whitney Lackenbauer and W.A. March, (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), 55.

¹¹² Sean M. Maloney, “Canada’s Arctic Sky Spies: The Director’s Cut,” *Canadian Military Journal* 9, no. 1, 76-77, <http://www.journal.forces.gc.ca/vo9/no1/doc/11-maloney-end.pdf>.

¹¹³ Ken S. Coates *et al.*, *Arctic Front: Defending Canada in the Far North*, (Toronto: Thomas Allen Publishers, 2008) 63.

¹¹⁴ Joseph Jockel, *No Boundaries Upstairs: Canada, the United States and the Origins of North American Air Defence, 1945-1958* (Vancouver: University of British Columbia Press, 1987).

¹¹⁵ Sean M. Maloney, “Canada’s Arctic Sky Spies: The Director’s Cut,” *Canadian Military Journal* 9, no. 1, 79, <http://www.journal.forces.gc.ca/vo9/no1/doc/11-maloney-end.pdf>.

¹¹⁶ *Ibid*, 86.

conducted by airdrop. Once the runway had been improved, the RCAF was able to make regular deliveries approximately every six weeks in 1958 and increased to twice a month in 1959. Eventually the operation was refined to the point where large quantities of supplies were shipped via sealift to Thule Greenland and then two (and later three) times a year a concentrated effort called Operation BOXTOP was conducted to deliver the supplies to CFS Alert (with fresh fruits and vegetables delivered twice a month for the remainder of the year).¹¹⁷

Post-Cold War, Air Mobility operations in the Arctic have continued unabated. Regular sustainment flights to CFS Alert continue. RCAF responsibility for air Search and Rescue has continued and provides a gold standard within the eight nations of the Arctic SAR Treaty.¹¹⁸ In recent times there have been several high profile northern SAR missions that confirm the RCAF continued commitment to Arctic operations:

- BOXTOP 22 (October 1991) – a CF CC-130 Hercules crashed near CFS Alert during BOXTOP.
- First Air Flight 6560 (August 2010) – a First Air commercial aircraft crashed during the approach to Resolute Bay, NU.
- SAR Igloolik, NU (October 2011) – SAR aircraft from Winnipeg, Trenton, and Gander were deployed to rescue a father and son stranded in a small aluminum boat in fierce weather conditions; the SAR Technician Team Lead lost his life in the rescue.¹¹⁹

The renewal of Government of Canada focus on the north and the implications for the CAF has not been lost on the RCAF. The RCAF continues to provide leadership in CAF Northern operations through the NORAD partnership with the U.S. in the defence of North America,

¹¹⁷ Daniel Heidt and P. Whitney Lackenbauer, "Sovereignty for Hire: Civilian Airlift Contractors and the Distant Early Warning (DEW) Line, 1954-1961," in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force's Experience in the Arctic*, ed. P. Whitney Lackenbauer and W.A. March, (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), 117.

¹¹⁸ House of Commons, Standing Committee on National Defence, *Minutes of Proceedings and Evidences*, no. 59, Thursday, November 29, 2012, 16:30.

¹¹⁹ Dany Poitras, "Search and Rescue in the Arctic a Myth or Reality?" (Masters in Defence Studies, Canadian Forces College, 10 April 2013), 39-48.

Search and Rescue operations, and Air Mobility as a key enabler for integrated operations and exercises throughout the Arctic.

Widely dispersed and sparse population

Given the widely dispersed nature of the population in Canada's North and the relative isolation from the southern regions, communication with the resident population can be challenging.¹²⁰ The ability to maximize the effect of CAF operations throughout the Arctic requires the support of Canada's northern population and direct contact with the First Nations, territorial, and community leadership is critical to enable CAF operations in the North. In order to build and foster a relationship that will support the CAF's ambitions, a regular presence and dialogue is needed.¹²¹ Establishing these lines of communication is essential to the CAF's ability to conduct operations and project its footprint throughout the Arctic. In terms of supporting the ambitions of the CAF, lines of communication include mobility and supply lines as well as the ability to transmit and receive voice and data communications and establish community relationships.¹²² Air mobility will be an enabler on all fronts from supporting liaison visits, deploying a response, to delivering enablers such as tactical mobility and communications systems, and ensuring the flow of sustainment from the south.¹²³

The North is characterized by limited and disparate commercial communication infrastructure. A great number of Northern communities do not have redundant connectivity,

¹²⁰ Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 14-15; Tony Balasevicius, "Toward a Canadian Forces Arctic Operating Concept," *Canadian Military Journal* 11, no. 2 (Spring 2011): 22, <http://www.journal.forces.gc.ca/vol11/no2/doc/05-balasevicius-eng.pdf>.

¹²¹ P. Whitney Lackenbauer, "Canada's Northern Defenders: Aboriginal Peoples in the Canadian Rangers, 1947-2005: Canadian Arctic Sovereignty and Security: Historical Perspectives," *Calgary Papers in Military and Strategic Studies Occasional Paper Number 4* (2011), 345.

¹²² Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 44-45.

¹²³ P. Whitney Lackenbauer, "From Above: The Royal Canadian Air Force and the Evolving Arctic Security Environment," *Airforce Magazine* 37, no. 4 (2014): 8; Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 44

and service interruptions are not uncommon. The CAF will need to bring its own communications assets to operate in the North. Spreading the footprint of the CAF across the vast expanses of the Canadian Arctic will require the force multiplication effects of Air Mobility. However, Air Mobility itself will need to leverage technology as force multiplier to enhance its effects.¹²⁴ Centralized control and decentralized execution is a key tenet of air power.¹²⁵ In order to capitalize on this aspect of the Air Mobility capability, resilient and multi-tiered systems must be available to maximize the effect of Air Mobility; the use of strategic airlift to move the response from the south to an operations hub in the North and tactical airlift to deliver the effect to the area of operations.¹²⁶ Strategic airlift is normally thought of in terms of moving personnel and material between theatres of operation; however, it can also be used to describe airlift between two areas of operation. Canada is a single theatre of operations with three areas of operation.¹²⁷ Due to the size of the Canadian domestic theatre of operations, airlift from southern main operating bases to the Arctic can be considered strategic.¹²⁸

Whether conducting operations in the North as the lead department, or supporting other government departments and agencies leading a Government of Canada integrated response, the CAF will be need to be able to establish communications (an essential element for airlift operations) with the south through organic assets due to the expeditionary nature of operations in

¹²⁴ Department Of National Defence, A-GA-007-000/AF-008, *Air Force Vectors – Abridged Version* (Ottawa: DND Canada, 2014), 17.

¹²⁵ Department of National Defence, B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine 2nd ed.* (Ottawa: DND Canada, 2010), 28.

¹²⁶ *Ibid*, 15, 28.

¹²⁷ Department of National Defence, B-GJ-005-300/FP-001, *CFJP 3.0 Operation* (Ottawa: DND Canada, July 2010), 2-2.

¹²⁸ Department of National Defence, B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine 2nd ed.* (Ottawa: DND Canada, 2010), 15.

the Arctic.¹²⁹ Although great strides have been made to reduce the digital divide, there still remains a gap between CAF needs and the commercial backbone available to support operations in the North. Some communities in the in the North West Territories and all but one in the Yukon are served by land based system backbones; Nunavut is completely reliant on satellite services for outside communication (internet) connectivity with limited bandwidth.¹³⁰

The takeaway from this is that there is limited access to large data bandwidth needed to meet the communications requirements for any substantial response in the North. Operations in near communities may be able to leverage the existing connectivity for a short initial response, but more substantial and sustained operations will require an organic capability. To ensure mission success throughout the Arctic, the CAF will need to be able to reach back from the deployed operating area to nodes where connections can be made to more sizeable data pipes. An example of this is the more permanent communications links that have been established for Canadian Forces Station (CFS) Alert. This base is at the northern tip of Ellesmere Island and is too far north and over the horizon for suitable geostationary satellites. Therefore, communications are achieved through microwave relays to the south where the signals are then linked up to communications satellites.¹³¹

Limited Infrastructure

Another challenge facing CAF is the limited infrastructure in the north, which is perhaps the most significant impediment to operating in the North. The limited infrastructure of Canada's Arctic places significant challenges to CAF operations – not only in terms of lines of

¹²⁹ Ibid, 14.; Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 44; George Macdonald, "Force Requirements (Air)," in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald, (Vimy Paper 2007: Conference of Defence Associations Institute, 2007), 112.

¹³⁰ Imaituk Inc., "A Matter of Survival – Arctic Communications Infrastructure in the 21st Century," 30 April 2011, available at http://www.aciareport.ca/resources/acia_full-v1.pdf, 56.

¹³¹ C.L. Gardner, *Investigation of a Photovoltaic/Battery Hybrid System for Powering the Arctic Data Communications System Final Report*, (Ottawa: Department of National Defence, August 1989), 1.

communications, but also with respect to infrastructure supporting the mobility requirements of a CAF operation. The ability to rapidly deploy and sustain a force of any size into the geographically separated and small communities of the North will challenge the CAF in responding to requests for support or conducting sovereignty operations. The possibility of ground transportation to move troops and equipment from southern-based garrisons to an area of operations in the North is for the most part non-existent due to geography and the lack of roads and at best limited within and around Arctic communities. Many Northern communities are only accessible via air or seasonal ground access (waterways or winter roads).¹³² These accessibility challenges only magnify the difficulty of responding to emerging requirements and further highlight the importance that Air Mobility will play in CAF responses in the Arctic.¹³³ Projecting capabilities to remote locations will require the full spectrum of RCAF mobility assets. This is a unique characteristic and challenge of operating in an austere environment with very limited infrastructure. Whereas in the southern areas of Canada, there is infrastructure and commercial services that can be leveraged. Such an example is the CAF response to a request for assistance by the province of Alberta in June 2013. The provincial capabilities were overwhelmed by flash flooding in the southern Alberta. While there were some Air Mobility requirements in this operation, the bulk of the response was deployed via ground lines of communication and local commercial resources could be leveraged for logistical support.¹³⁴

The limited resources in the North require forces operating in nearly any location to bring significant equipment and supplies to be able to operate effectively. Deploying a meaningful and

¹³² Tony Balasevicius, "Toward a Canadian Forces Arctic Operating Concept," *Canadian Military Journal* 11, no. 2 (Spring 2011): 22, <http://www.journal.forces.gc.ca/vol11/no2/doc/05-balasevicius-eng.pdf>.

¹³³ Ken S. Coates *et al.*, *Arctic Front: Defending Canada in the Far North*, (Toronto: Thomas Allen Publishers, 2008), 169.

¹³⁴ National Defence and the Canadian Armed Forces, "Operation Lentus 13-1," last accessed 14 December 2014, <http://www.forces.gc.ca/en/operations-canada-north-america-past/op-lentus-13-1.page>.

timely response from southern bases to Canada's northern reaches poses significant logistical challenges. Many communities are only reachable by air or sea and, not all of the airports are useable by larger aircraft such as the CC-177.¹³⁵ Additionally, the location requiring assistance may not be in close proximity to an airport, thereby increasing the challenge of delivering a meaningful response in an appropriate timeframe. The significance of this for the CAF is the requirement for an organic capability to be able to move personnel and materiel across great distances to austere locations to conduct operations.¹³⁶ The CAF must be self sufficient in terms of projecting its effect to any location in Canada's North where suitable infrastructure for supporting commercial or large aircraft, at the operating location, cannot be assumed.¹³⁷ The RCAF, and Air Mobility in particular, possess capabilities that cover the airlift and mobility requirements for deployment of a response from a main operating base in the south via to the most austere location in Canada's North with a combination of CC-177, CC-130J, and CC-138; the synergistic effects of the RCAF's multi-fleet Air Mobility capability can be used to project a government of Canada response to any location in the Arctic. The next chapter will detail a possible solution that is based on this tiered, multi-fleet approach.

Sustainment

Lastly, the sustainment of a CAF response in the North will also be a major challenge. The majority of communities in the North are subsistence based communities, structured to support the needs of the community with limited capacity to support additional personnel

¹³⁵ Department of National Defence, *DRDC-CORA TM 2010-170, Modeling and analysis of Canadian Forces RSOM hub for Northern Operations*, (Ottawa: DND Canada, 2010), 5.

¹³⁶ Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 41, 45.

¹³⁷ Tony Balasevicius, "Toward a Canadian Forces Arctic Operating Concept," *Canadian Military Journal* 11, no. 2 (Spring 2011): 27, <http://www.journal.forces.gc.ca/vo11/no2/doc/05-balasevicius-eng.pdf>.

responding to an incident.¹³⁸ Accordingly, the CAF must therefore be self-reliant and one of the main considerations must be the sustainment of a capability deployed to the North. The logistical challenges posed by Canada's Arctic can be seen to parallel the requirements of CAF's mission in Afghanistan and perhaps even to a greater extent due to the lack of a capacity for support through ground lines of communications to the south.¹³⁹

As noted previously, the limited infrastructure will place a number of restraints on how a government of Canada integrated response to a crisis (such as a natural disaster) in the Arctic is manifested. Firstly, depending on the location of an operation, there are limited, if any, over land options for the CAF to deploy to the North. Sea options will have seasonal and limited port options to consider. Thus, airlift becomes the de facto solution to overcome the time and space challenges of a timely response.¹⁴⁰

Also, any response must not become a burden on the limited local resources of the area to which the response is being provided.¹⁴¹ The small and widely dispersed communities in the North do not possess the capacity to sustain a large influx of personnel and equipment that could be deployed as part of the government's integrated response to a situation in the Arctic. Rob Huebert warns that the economic impact of any military buildup must be carefully monitored as the plans are implemented.¹⁴² Using commercial suppliers to meet the logistical support demands

¹³⁸ Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 47.

¹³⁹ Ken S. Coates *et al.*, *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen Publishers, 2008) 169.

¹⁴⁰ Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 39.

¹⁴¹ *Ibid* 47; P. Whitney Lackenbauer, "From Above: The Royal Canadian Air Force and the Evolving Arctic Security Environment," *Airforce Magazine* 37, no. 4 (2014): 8.

¹⁴² CBC News, "Canadian Forces may need U.S. help supplying the Arctic," CBC News, last updated 14 November 2011, <http://www.cbc.ca/news/politics/canadian-forces-may-need-u-s-help-supplying-arctic-1.1100050>.

of an operation could easily place undue pressures on the availability of fuel stores and has the potential to drive up the costs for local residents.¹⁴³

NORAD has invested in dedicated infrastructure and has contracts in place at its Forward Operating Locations in Yellowknife, Inuvik, Iqaluit, and Rankin Inlet. This is possible due to the ability of the NORAD aircraft (fighter and tanker aircraft) to execute their mission across the entire North from these four locations.¹⁴⁴ A CAF deployment to the Arctic as part of an integrated government response will most likely be more localized and not necessarily near a pre-planned location. As an example, an oil tanker running aground and causing an environmental catastrophe could happen at an almost infinite number of locations throughout the Arctic and there is no way to know where or when this could happen, making the prepositioning of the necessary resources impossible.¹⁴⁵ Currently, outside of NORAD, the CAF does not have pre-positioned materiel or contracts in place to support an extended deployment to the North. Large exercises or operations (such as Operation Nanook) require specific contract arrangements for logistical support to be made well ahead of time.¹⁴⁶ While this is feasible for pre-planned operations, it will not meet the need for short notice contingency operations. Aspects of the NORAD Forward Operating Locations concept can be applied in developing a solution for the CAF to conduct and sustain operations anywhere in the Arctic. As will be shown in the next chapter, the CAF can apply the FOL concept but without the permanent infrastructure. The CAF

¹⁴³ *Ibid*; Department of National Defence, *Arctic Integrating Concept*, (Winnipeg: 17 Wg Publishing Office, 2010), 48.

¹⁴⁴ Joseph T. Jockel, "Security to the North – Canada-U.S. Defense Relations in the 1990s," (Michigan State University Press: East Lansing, 1991), 120.

¹⁴⁵ Mike De Souza, "Harper says full protection of Arctic impossible," Postmedia News, Nunatsiq Online, 23 August 2010, last accessed 14 December 2014, http://www.nunatsiaqonline.ca/stories/article/65674harper_says_full_protection_of_arctic_impossible/.

¹⁴⁶ Maj Marc Fortier (CJOC J5 Lead Planner for Operation NANOOK from October 2012 to June 2014), telephone conversation with author, 15 December 2014.

would be able to deploy a response from the south and quickly begin to deliver effects by having pre-planned the initial support requirements at strategic locations across the Arctic.

Summary

The small size of the CAF, coupled with the limited resources and a very large area of responsibility, presents a significant challenge to the CAF's ability to project an effective footprint throughout the North. The region is characterized by its sparse population and limited infrastructure. There will be very little that the CAF can leverage in support of its mission in the North. As a result, the CAF, for the majority of situations, will need to be self-sufficient in terms of establishing lines of communication for deployment and sustainment of an operation. This contrasts greatly with the concept of operations in the southern regions of Canada where robust infrastructure and abundant local resources can be leveraged.

To overcome this challenge, the CAF will lean on its organic mobility capability. In the context of the Canadian Arctic this translates to Air Mobility and more specifically a tiered, multi-fleet capability – strategic airlift to staging hubs in the north from where spokes of tactical Air Mobility can further project a WOG integrated response anywhere in Canada's North. Herein lies the value of Air Mobility as a force multiplier that will be essential to any CAF response in the Arctic. This concept will be explained in the next chapter as part of an achievable concept for CAF to deliver on its portion of a government of Canada integrated response in the North.

CHAPTER 4 – THE AIR MOBILITY ENABLER

Introduction

The ability for the CAF to deliver a meaningful and timely response anywhere in the Arctic, either as the lead agency for a defence response or in support of another government department or agency, will hinge on its ability to traverse over great distances to access austere locations. The requirement for this capability stems from fiscal realities that do not permit a dedicated footprint in the North that is sufficient to fulfill the CAF's mandate.¹⁴⁷ The solution for the CAF must be robust enough to meet the expectations of the government and the Canadian population of a response anywhere throughout the Arctic. Yet, it must be an affordable solution that does not overwhelm the limited resources of a relatively small force. Air mobility will be an essential capability to enable the CAF to conduct or support operations to remote locations in Canada's Arctic.

As the previous chapter demonstrated, the RCAF has a rich history operating in the North and is equally experienced at expeditionary operations. The recent investments in the Air Mobility fleet with the acquisition of the CC-177 Globemaster and CC-130J Hercules, coupled with steadfast work from the CC-138 Twin Otter fleet will offer a tiered, multi-fleet Air Mobility solution to respond to the most remote locations of Canada's Arctic. These current RCAF fleets are complimentary in terms of their capabilities for delivering effects to the North. This synergy is manifested in the tried and tested hub and spoke doctrine of Air Mobility that will be the foundation of the solution proposed in this chapter.

RCAF Aircraft Essential to Operations in the Arctic

¹⁴⁷ Tony Balasevicius, "Toward a Canadian Forces Arctic Operating Concept," *Canadian Military Journal* 11, no. 2 (Spring 2011): 27, <http://www.journal.forces.gc.ca/vo111/no2/doc/05-balasevicius-eng.pdf>.

In order to understand how the RCAF will enable CAF operations, or support to other government departments and agencies, it is necessary to have an appreciation of the capabilities that are available and capable of operating in the extreme conditions of the Arctic. This chapter will restrict the discussion of an Arctic mobility solution to fixed wing aircraft, namely the CC-177 Globemaster, CC-130J Hercules, and the CC-138 Twin Otter.

However, it should be noted that the RCAF has recently taken delivery of CH-147 Chinook helicopters. The capability of this helicopter will add another dimension of flexibility to the RCAF solution for enabling CAF and Government of Canada responses in the Arctic. It has roughly the same combat radius as the CC-138 Twin Otter but it brings the added capability of being able to sling loads that may not fit inside of a CC-138 Twin Otter. The CH-147 Chinook is also air transportable via the CC-177 with some relatively minor disassembly. This will make it a valuable piece of the RCAF mobility capability in the years to come.¹⁴⁸

CC-177

Over the past decade, the RCAF has invested considerable resources in revitalizing its Air Mobility capability. The venerable CC-130 E and H models had served the RCAF well in air transport roles (and continue to do so in the Search and Rescue role). However, the legacy Hercules fleet was often used more in a strategic role to haul cargo over long distances for both domestic and expeditionary operations than for the tactical airlift for which it was built. This was in part due to a lack of strategic airlift within the RCAF.¹⁴⁹ The equation changed when the Air

¹⁴⁸ Ken Pole, "Not Your Grandfathers' Chinook," *RCAF Today*, Spring 2014, 46-57.

¹⁴⁹ Normally, strategic airlift (also known as inter-theatre airlift) are those flights that move personnel and equipment between theatres of operation and tactical airlift (also known as intra-theatre airlift) are those flights that move personnel and equipment within a theatre of operations. In the case of the Canadian domestic theatre of operations, it is so large that some airlift missions, although remaining within the domestic theatre of operations, are termed strategic missions. B-GA-404-000-FP-001 *Canadian Forces Aerospace Move Doctrine*, 15.

Force took delivery of the four Boeing C-17 Globemaster III (in Canadian parlance they are known as the CC-177) aircraft in 2007-2008.¹⁵⁰

The CC-177 provides Canada with a strategic airlift capability that can deliver cargo from a main operating base to many Forward Operating Locations without the need to transfer the load to smaller tactical aircraft such as the CC130J.¹⁵¹ The CC-177 can also perform many tactical airlift operations such as operating on semi-prepared runways such as the snow covered gravel runways that are found in Canada's North. The CC-177 will be used to support the CAF efforts in meeting its mandates for domestic and international operations.¹⁵² Specifically, in regards to the CAF role to protect Canada and Canadians, the CC-177 will enable the increase to sovereignty efforts through the airlift of personnel and equipment for Northern presence operations.¹⁵³ It is ideally suited for supporting such operations. It has the range and payload capability to quickly deploy a meaningful and timely Government of Canada integrated response throughout the Canadian Arctic. The CC-177 has a maximum range of approximately 10 000 kilometres and can carry over 72 000 kilograms. To put this in perspective, it has the ability to reach all airports across the Canadian Arctic from Inuvik (CYEV), North West Territories in the Western Arctic (a distance of 4 159 kilometres) to Alert (CYLT), Nunavut in the Eastern Arctic (a distance of 4 313 kilometres) and all points in between from its main operating base at 8 Wing Trenton (CYTR), Ontario.¹⁵⁴

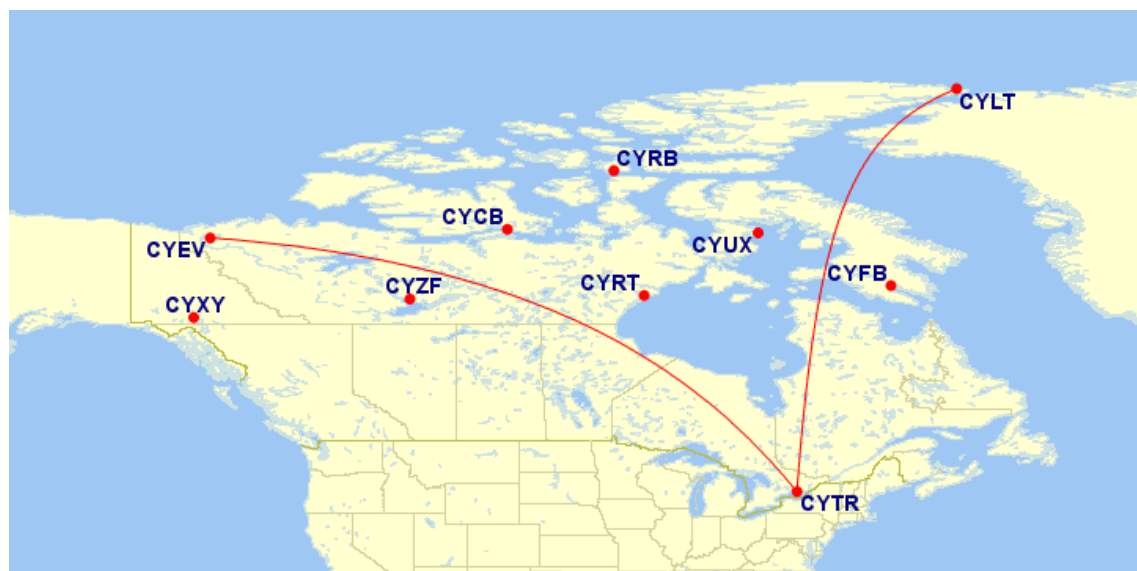
¹⁵⁰ Royal Canadian Air Force, "CC-177 Globemaster III: Transport Aircraft," last accessed on 9 November 14, <http://www.rcaf-arc.forces.gc.ca/en/aircraft-current/cc-177.page>; T.F.J. Leversedge, *Canadian Combat and Support Aircraft: A Military Compendium*, (St. Catharines: Vanwell, 2007), 245.

¹⁵¹ Department of National Defence, *Airlift Capability Project Strategic (ACP-S) Statement of Operating Intent (SOI)*, version 1.1, (Winnipeg: 1 Canadian Air Division, 17 December 2008), 1.

¹⁵² *Ibid*, 4.

¹⁵³ *Ibid*, 4-5.

¹⁵⁴ T.F.J. Leversedge, *Canadian Combat and Support Aircraft: A Military Compendium* (St. Catharines: Vanwell, 2007), 245.



Figure

4.1 – CC-177 Globemaster reach into the Arctic from 8 Wing Trenton

Map generated by the Great Circle Mapper (www.gcmap.com) - copyright © Karl L. Schwartz.

The lift capacity of the CC-177 (which is approximately three times that of a CC-130) and ability to land on semi-prepared runways is essential to meaningful and timely support to any response to the North. Specifically, the CC-177 can carry up to three CH-146 Griffon helicopters with re-fuelling tanks, 102 soldiers, or a combination of cargo and personnel.¹⁵⁵ Its cargo capacity and ability to use semi-prepared runways sets it apart from most other jet aircraft currently operating throughout the North; the most modern commercial jet that can operate from the gravel airfields is the Boeing 737-200.¹⁵⁶ With the capability to operate on semi-prepared runways, the CC-177 will serve as the strategic link to deploy and sustain an integrated response to the Arctic. However, in order to provide a footprint that can cover all of the Canadian Arctic,

¹⁵⁵ Royal Canadian Air Force, “CC-177 Globemaster III: Transport Aircraft,” last accessed on 9 November 14, <http://www.rcaf-arc.forces.gc.ca/en/aircraft-current/cc-177.page>.

¹⁵⁶ Bob Weber, “Canada’s aging Arctic airports reducing service to northerners, pilots say,” *The Star*, last accessed 9 November 2014.

http://www.thestar.com/news/canada/2013/06/02/canadas_aging_arctic_airports_reducing_service_to_northerners_pilots_say.html.

there are areas that will require a tiered, multi-fleet airlift solution to deploy a particular response to areas that are not near an airport that can support CC-177 operations.

CC-130J

The CC-130J Hercules forms the next level of the tiered, multi-fleet Air Mobility capability that will enable the CAF to fulfill its mandate in the North. The CC-130J provides the CAF's tactical or intra-theatre airlift capability. To fill this role, the RCAF took delivery of 17 CC-130J from 2010-2012; its main operating base is 8 Wing Trenton, ON.¹⁵⁷

The intended use for the CC-130J is for tactical airlift operations. The role for it in light of policy direction and guidance, with respect to the Arctic, lies in the protection of Canada and Canadians. In particular, it will contribute to the efforts of Northern sovereignty by providing airlift of personnel and equipment for Northern presence operations and continued support to Canadian Forces Station Alert. It is specifically intended to provide airlift for the deployment of land forces and command elements, special operations forces (SOF), and task forces anywhere in Canada.¹⁵⁸

The CC-130J has a smaller cargo capacity and shorter range than the CC-177; however, it is capable of operating into smaller and more austere environments. This will be essential to ensuring that the CAF can deploy or support a response to an area that is not near an airfield capable of supporting CC-177 operations. The CC-130J has a maximum range of 6 852 kilometres and a maximum payload of 21 772 kilograms.¹⁵⁹ With such a capability, the CC-130J allows the CAF to extend a response from CC-177 capable airfields to more austere location

¹⁵⁷ RCAF web page, <http://www.rcf-arc.forces.gc.ca/en/aircraft-current/cc-130j.page> accessed on 9 November 14; T.F.J. Leversedge, *Canadian Combat and Support Aircraft: A Military Compendium* (St. Catharines: Vanwell, 2007), 247.

¹⁵⁸ Department of National Defence, *Airlift Capability Project Tactical (ACP-T) Statement of Operating Intent (SOI)*, version 1.0, (Winnipeg: 1 Canadian Air Division, 1 March 2009), 5.

¹⁵⁹ *Ibid.*

throughout the Arctic. The map below shows a network of air links that would allow for maximum cargo on CC-130J (all segments less than 926 kilometres).



Figure

4.2 – CC-130J segments with maximum cargo

Map generated by the Great Circle Mapper (www.gcmap.com) - copyright © Karl L. Schwartz.

While the CC-177 provides the strategic inter-theatre airlift to project a response from main operating bases to hubs in the theatre of operations, the CC-130J provides the intra-theater Air Mobility link to move the personnel and equipment forward throughout the area of operations.¹⁶⁰ In the context of the Canadian North this will allow an expanded footprint beyond the limited number of airfields capable of supporting CC-177 operations.

CC-138

The third tier of the multi-fleet Air Mobility approach to projecting an integrated response throughout the Arctic is the CC-138 Twin Otter. RCAF No. 440 Squadron has a fleet of four CC-138 based in Yellowknife, North West Territories. Despite its age (the RCAF's four aircraft were procured in 1970), the CC-138 plays a vital role in Air Mobility's support of CAF

¹⁶⁰ Department of National Defence, B-GA-404-000/FP-001, *Canadian Forces Aerospace Move Doctrine 1st ed.* (Ottawa: DND Canada, November 2011), 3.

operations in the North. With its short takeoff and landing capability, the CC-138 is well suited for operations in Canada's North. It can be equipped with tires, floats, or skis that allow it land virtually anywhere in the Arctic on land, water, snow, or ice. It can carry a maximum payload of 2 999 kilograms or 20 passengers and has a range of just over 1 400 kilometres.¹⁶¹ The CC-138 capability further extends the reach of the CAF beyond the CC-130 capable airfields with the capability to land on the tundra or frozen fjords.¹⁶²

Based on the current fleet mix of Air Mobility assets, the RCAF doctrine offers some options to maximize the efficiency of airlift operations depending on the specifics of the scenario. The next section will describe the concepts of the hub and spoke as well as the direct delivery method for airlift operations.

Hub and Spoke vs. Direct Delivery

The hub and spoke is a longstanding principle of Air Mobility operations. It provides an efficient way to move large volumes of personnel and equipment into a theatre of operations via strategic airlift and then disperse them via smaller, tactical airlift aircraft that are able to operate into smaller more austere locations. The hub and spoke concept maximizes the strategic airlift capacity and gains efficiency through centralized control of limited strategic resources such as the CC-177.¹⁶³ The coordinated use of a tiered, multi-fleet approach to the application of the hub and spoke method of supporting domestic operations is a viable solution to the Arctic challenge.

¹⁶¹ Royal Canadian Air Force, "CC-138 Twin Otter: Transport / Search and Rescue Aircraft," last accessed 9 November 2014, <http://www.rcaf-arc.forces.gc.ca/en/aircraft-current/cc-138.page>; T.F.J. Leversedge, *Canadian Combat and Support Aircraft: A Military Compendium* (St. Catharines: Vanwell, 2007), 145.

¹⁶² Lieutenant-Colonel Ross Wuerth, "Commanding the 440 'Vampires,'" *Airforce Magazine* 37, no. 4 (2014): 26-27.

The direct delivery method has the advantage of a shorter delivery time because it does not require routing through a specific hub. The point-to-point routing is shorter in distance and does not require the overhead of offloading one aircraft and re-loading onto another aircraft before being forwarded to the final destination. However, infrastructure and payload will be a determining factor on the feasibility of the direct delivery method, especially in the Canadian Arctic.¹⁶⁴ The CC-177 gives the CAF the capability to use the direct delivery method for some strategic airlift operations. However, there remain many airfields in Canada's North, which are not suitable for CC-177 operations.

The choice of delivery system, hub and spoke or direct delivery, is dependent on a number of factors. The ability of the infrastructure to support strategic airlift is a limiting factor for the direct delivery approach. As well, the availability of limited strategic airlift resources must also be factored in to the longer-term viability of each method for a particular operation; coordination and prioritization of missions is necessary to optimize the employment of limited strategic airlift resources.¹⁶⁵ Both of these methods were used to support the CAF mission in Afghanistan.

Initially, for the Afghanistan mission and prior to the Canada's acquisition of CC-177, the CAF used the CC-150 Polaris as the strategic airlift to deliver troops and cargo to the United Arab Emirates. From there, CC-130s were used for the onward movement into Afghanistan. The hub and spoke method was used for several reasons. The infrastructure at the various destinations in Afghanistan and the threat level were not suitable for strategic airlift and more

¹⁶³ Department of National Defence, B-GA-404-000/FP-001, *Canadian Forces Aerospace Move Doctrine* 1st ed. (Ottawa: DND Canada, November 2011), 28.

¹⁶⁴ *Ibid.*

¹⁶⁵ Department of National Defence, B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine* 2nd ed. (Ottawa: DND Canada, 2010), 27, 29.

appropriate for tactical airlift. As well, due to the length of the strategic lines of communication back to Canada, it was more efficient to use strategic airlift operations between Canada and the hub and then tactical airlift operations from the hub forward into the area of operations. Later on in the mission, with the procurement of the CC-177, the direct delivery method was used for some particular inter-theatre strategic airlift operations while the CC130 continued the intra-theatre tactical airlift operations.¹⁶⁶

With its recently revitalized Air Mobility fleet, the RCAF is well positioned to leverage both of these concepts and enable the CAF to meet its mandate as part of the Government of Canada integrated approach to the Arctic. The CC-177 can be used for direct delivery operations to a number of airfields across the Canadian Arctic or the hub and spoke method can be leveraged with a multi-fleet approach to reach the more remote and austere locations.

Given the requirement for a more enhanced presence in the North and ever-present fiscal constraints, the RCAF can leverage Air Mobility to enable the projection of a credible and timely response throughout the Arctic. By adapting NORAD's Forward Operating Locations (FOLs) concept, Air Mobility will be able support CAF and WOG integrated responses to safety, security, and defence issues.¹⁶⁷ Through a relatively modest investment of air transportable equipment to support a deployable support hub and the establishment of pre-arranged contract, the Air Mobility can provide the CAF with the ability to have a footprint wherever needed. The premise of this concept is to have a deployable response that can meet the demands of the

¹⁶⁶ Based on the author's experience as CC130 aircrew operating into Afghanistan - various periods from 2001-2005, Deputy Wing Commander for Joint Task Force Afghanistan from Feb – Nov, 2009, and 8 Wing (the home of the RCAF's Air Mobility) Operations Officer 2010 – 2012.

¹⁶⁷ Due to the vast size of Canada, NORAD has a series of four locations (Inuvik, Yellowknife, Rankin Inlet, and Iqaluit) that can extend the reach of NORAD fighter aircraft by providing bases for refuelling and maintenance as well as logistics support for the deployed force; Government of Canada, "NORAD Operations SPRING FORWARD concludes in Canada's North," last accessed 14 December 14 <http://news.gc.ca/web/article-en.do?nid=838399>; Joseph T. Jockel, *Security to the North – Canada-U.S. Defense Relations in the 1990s*, (Michigan State University Press: East Lansing, 1991), 120.

required response instead of establishing permanent bases in the Arctic from which to launch the response.¹⁶⁸ The advantage is that this approach is not as resource intensive as having permanently stationed forces in the Arctic, yet a robust response can be projected and deliver effects much more quickly than an ad hoc approach. One such example was Operation Morning Light, which was the response to a Soviet satellite crashing to earth and scattering radioactive debris in the Canadian Arctic. The broad multi-agency response was tasked with finding and recovering the radioactive debris in the harsh environment. It faced significant logistical and communications challenges at the outset given the short timelines available for planning such a major integrated response.¹⁶⁹ The solution proposed here would have mitigated some of the initial challenges of deploying the response.

The RCAF's rich history of operations in the North and Arctic air-mindedness continues today.¹⁷⁰ James Fergusson offers a contrary opinion that, "Today the RCAF is a 'southern,' overseas Air Force that goes North only when necessary."¹⁷¹ However, it must be noted that the RCAF has remained engaged in the North despite a high operational tempo overseas. In addition to the four CC-138 Twin Otters in Yellowknife, the CP-140 Aurora conducts regular patrols in the Arctic, CF-188 fighters carry out the NORAD mission and often operate from Forward Operating locations in the Arctic (this often entails the employment of either CC-130 or CC-150

¹⁶⁸ Canadian Joint Operations Command, *CJOC Plan for the North*, (Ottawa: Canadian Joint Operations Command, 28 January 2014), A2-2/19 – A2-6/19.

¹⁶⁹ William Sparling, "SITREP: The Morning Light Has Been Extinguished," in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the*

Canadian Air Force's Experience in the Arctic, ed. P. Whitney Lackenbauer and W.A. March, (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), 129-139.

¹⁷⁰ Richard Goette, "The Roundel and Building RCAF Arctic Air-mindedness During the Early Cold War," in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force's Experience in the Arctic*, ed. P. Whitney Lackenbauer and W.A. March, 6 (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), 67 .

¹⁷¹ James Fergusson, "Up in the Air, North of 60," *National Post*, February 6, 2013, last accessed 15 November 14, <http://fullcomment.nationalpost.com/2013/02/06/james-fergusson-up-in-the-air-north-of-60/>.

Air to Air Refuelling aircraft), and continuous Air Mobility support to Northern operations such as the weekly sustainment flights to Canadian Forces Station (CFS) Alert, Operation Box Top (twice yearly major re-supply of CFS Alert), as well as airlift support to major exercises and operations throughout the Arctic.¹⁷² The challenge for the CAF lies in the paradox of the requirement for a small force to project a footprint to cover an enormous area. The task is exacerbated by the harsh climate, sparse population, and extremely limited infrastructure. To overcome these obstacles, the RCAF will need to rely on its experience in Northern and expeditionary operations. The NORAD Forward Operating Locations (FOLs) can serve as concept to be adapted for a Northern response and may also be leveraged to expedite the deployment of a response.¹⁷³ The model will be based on the ability to support a response to an austere location anywhere in the Arctic. The solution must balance the frequency of use with the resources required to maintain it.

The proposed solution would see a pre-packaged capability that is maintained at a main operating base in southern Canada that is ready for deployment, similar to the Canada's Disaster Assistance Response Team (DART).¹⁷⁴ However, while the DART is a capability that could be used for a domestic response, the solution in this paper focuses on the mechanism to deploy and deliver effects. The framework suggested will be able to project the necessary response whether CAF is the lead or is providing support to other government departments or agencies. Given the

¹⁷² Commander Joint Task Force (North), *Joint Task Force (North) Annual Activity Notification Letter for Fiscal Year 2014-15* (Joint Task Force (North): file 1003-1(IGA), 4 June 2014); Royal Canadian Air Force, "Operation Boxtop supplies remote Canadian station," last accessed 14 December 2014, <http://www.rcaf-arc.forces.gc.ca/en/article-template-standard.page?doc=operation-boxtop-supplies-remote-canadian-station/i1glwab3>.

¹⁷³ Joseph T. Jockel, *Security to the North – Canada-U.S. Defense Relations in the 1990s* (Michigan State University Press: East Lansing, 1991), 120.

¹⁷⁴ National Defence and the Canadian Armed Forces, "The Disaster Assistance Response Team (DART)," last accessed 16 December 2014, <http://www.forces.gc.ca/en/operations-abroad-recurring/dart.page>.

lack of infrastructure in the North and the long lines of communications to any potential area of operations in the North, the solution will rely upon Air Mobility and therefore must be constrained in scope to essential elements needed for the immediate response. Additional support may be available through local commercial contracts or deployed as a follow-on of the initial response if required.

Due to the unknown location of a required response, it is impractical and cost prohibitive to pre-position and maintain CAF equipment and supplies or commercially contracted support to cover the entire Arctic.¹⁷⁵ Therefore, the suggested solution is to establish a series of strategically located support hubs across the Arctic that would be used to support a response. These hubs must be able to support strategic airlift in order for the response to be timely and meaningful. The airfields depicted in figure 3 are capable of supporting the CC-177. Using the hub and spoke method of delivery, the Arctic can be covered using a combination of CC-177, CC-130J, and CC-138 aircraft. To minimize the resource requirements while maximizing the capability to respond, the solution should minimize the overlap of the footprint that each of the hubs could project. Therefore, to leverage the currently available infrastructure in the North while maximizing the efficiency of Air Mobility, the suggested solution would use four main hubs, located at Inuvik, Yellowknife, Resolute Bay, and Iqaluit.¹⁷⁶

¹⁷⁵ Dany Poitras, "Search and Rescue in the Arctic a Myth or Reality?" (Masters in Defence Studies, Canadian Forces College, 10 April 2013), 32, 72, 89.

¹⁷⁶ Department of National Defence, *DRDC-CORA TM 2010-170, Modeling and analysis of Canadian Forces RSOM hub for Northern Operations*, (Ottawa: DND Canada, 2010).

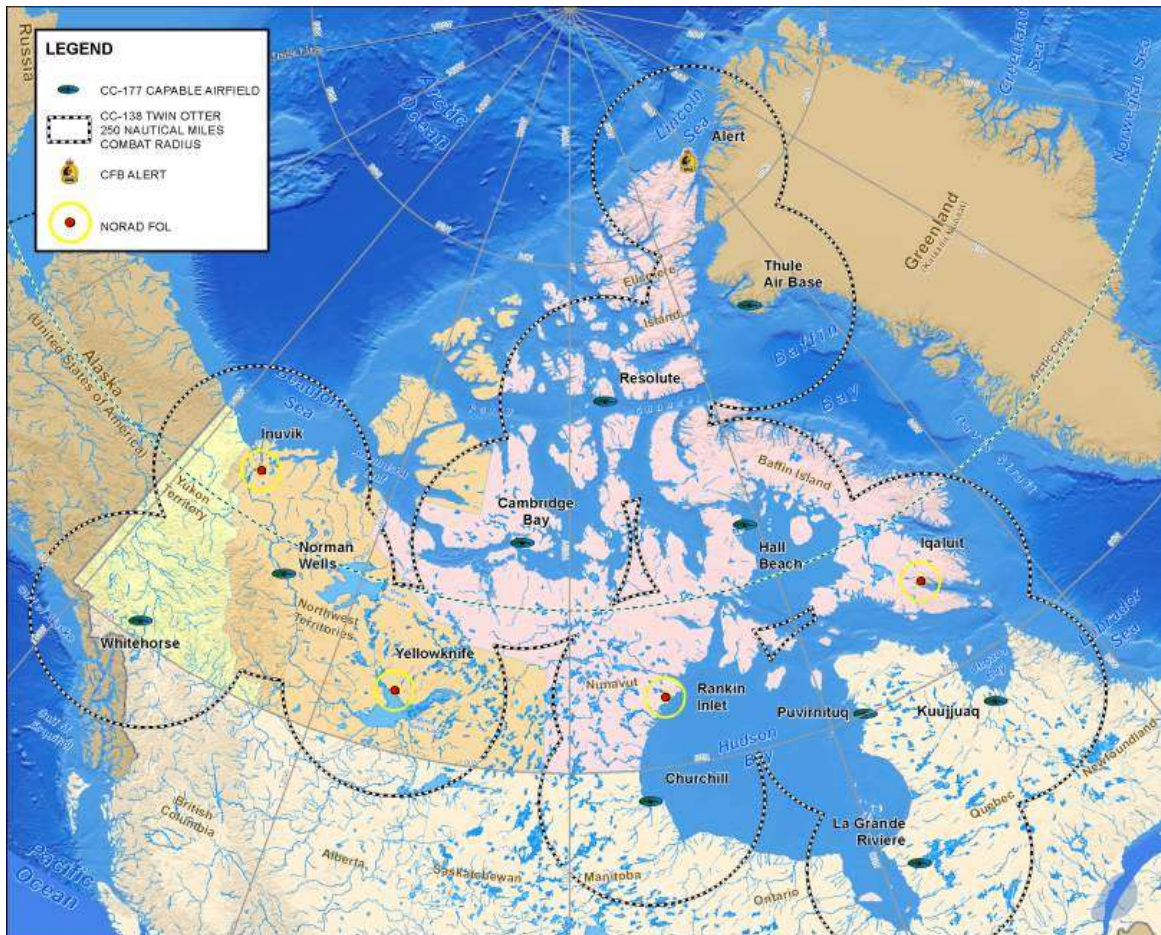


Figure 4.3 – CC-177 capable airfields in the Arctic

Joint Task Force (North) Planning Map

By focussing the scope of this effort to four strategic airlift hubs, the necessary coordination and arrangements can be pre-negotiated and some preparatory work can be accomplished and exercised. The requirements for the hub can be modelled after the NORAD FOLs with the difference being that no permanent infrastructure is established; however, there is the option of the hubs to leverage existing infrastructure. Of the four locations identified, Inuvik, Yellowknife, and Iqaluit are NORAD FOL locations and Joint Task Force North is located in Yellowknife. Resolute Bay is home to the Arctic Training Centre, which “was developed

through a partnership between the Canadian Army and Natural Resources Canada, which had an existing facility housing its Polar Continental Shelf Program.”¹⁷⁷

The deployable support hub will operate on a concept similar to the DART. The equipment would be pre-determined and readied for air transport and the personnel identified and trained. A key component of the deployable support hub equipment would be a Relocatable Temporary Camp along with integral communications capability. A small contingent of personnel that are trained and on a high readiness posture would need to be identified to deploy with and activate the support hub. The logical place to store the necessary equipment is at 8 Wing Trenton – the home of Air Mobility. Having the equipment for the deployable support hub co-located with the strategic airlift capability at Trenton would facilitate a rapid deployment. 8 Wing Trenton has the experience and expertise to facilitate a short-notice deployment as well as the Air Mobility resources required for the deployment.¹⁷⁸

The deployment of the DART to the Philippines in November 2013 is a recent example of the deployable support hub concept. The DART equipment is warehoused at 8 Wing Trenton for rapid deployment via strategic airlift. When the DART was activated, the equipment was moved from the warehouse and loaded onto CC-177 for airlift to the theatre of operations, in this case Iloilo on the south side of Panay Island in the Philippines. Once it arrived at Iloilo, the equipment was taken off of the CC-177 and put onto trucks for a road move to Roxas City on the north side of Panay Island because the runway at Roxas City was not able to support the weight of the CC-177. From there, utility airlift, in the form of CH-146 Griffon, was able to further

¹⁷⁷ Canadian Army, “New Arctic Training Centre boost’s Army’s presence in the North,” last updated 15 August 2013, <http://www.army-armee.forces.gc.ca/en/news-publications/national-news-details-no-menu.page?doc=new-arctic-training-centre-boosts-army-s-presence-in-the-north/hkdontpd>.

¹⁷⁸ Royal Canadian Air Force, “8 Wing Trenton,” last accessed on 14 December 2014, <http://www.rcf-arc.forces.gc.ca/en/8-wing/index.page>.

deploy critical aid to outlying areas that were not accessible by road.¹⁷⁹ Likewise, in the Arctic response scenario, the deployable support hub equipment to support a Northern response would also be stored at Trenton and deployed via strategic airlift to one of the four pre-selected hubs.

The hub will provide the logistical support of the response.¹⁸⁰ In the case where the incident site is not located near the hub or CC-177 capable airfield, it will also serve as the nexus for staging and onward movement of the response. The footprint of the hub extends out to the combat radius of the CC-138 Twin Otter, as depicted in figure 3.

The effective footprint of the hub is further expanded by inclusion of the CC-130J to further project the response to the many CC-130J capable airfields and the CC-138, which has the capability of providing mobility of personnel and limited equipment to unprepared landing zones. The establishment of the hub and spoke method from these four pre-selected airfields does not preclude direct delivery to operations that are located at or very nearby other CC-177 capable airfields; it simply gives a pre-planned option to support the rapid deployment of a CAF or an integrated, WOG response. As the operation develops, other more tailored arrangements could be put into place to support the response.

As an example of the concept, consider a response to Sachs Harbour on Banks Island in the Western Arctic. This location would be a challenging area to project a response to and highlights the importance of a multi-fleet Air Mobility capability in the Arctic. The airport at Sachs Harbour cannot support CC-177 operations at this time. Upon the decision to deploy a response to Sachs Harbour, the deployable support hub and personnel would be readied for CC-

¹⁷⁹ The author was on the initial Inter-Departmental Strategic Support Team reconnaissance for the Government of Canada response to the effects of Typhoon Haiyan on the Philippines. After the initial assessment and the government's decision to deploy the DART, he remained as a Liaison officer to CJOC and then as the Canadian representative to the Multi National Coordination Centre located at Camp Aguinaldo in Quezon City (part of Metro Manila).

¹⁸⁰ Canadian Joint Operations Command, *CJOC Plan for the North*, (Ottawa: Canadian Joint Operations Command, 28 January 2014), A2-2/19.

177 airlift to Inuvik NT. Once on the ground, the deployable support hub would be set up and activated (including any pre-arranged support contracts). The activated support hub would facilitate the reception, staging and onward movement of the response to the area of operations. Concurrent to the deployment of the support hub, the directed response (be it a CAF led defence task or CAF support to other government departments and agencies) would be called upon to deploy. Joint Task Force North, in Yellowknife, would be given the task of executing the CAF mission and depending on the complexity and duration of the response may move a headquarters element forward to the area of the operation. Although Joint Task Force North (as the Regional Joint Task Force Commander under CJOC) is responsible for CAF operations in the Arctic,¹⁸¹ resources for any sizeable response would need to be provided from a southern garrison such as Edmonton. Again, Air Mobility would be the critical enabler to transport resources from Edmonton to the deployed support hub in Inuvik. From Inuvik, the response would be sent to the area of operation in Sachs Harbour via CC-130J aircraft. CC-138 would provide Air Mobility support from Sachs Harbour to further extend the footprint of the deployed response if the area of operation was not accessible by land.

¹⁸¹ Canadian Armed Forces, "Canadian Joint Operations Command," last accessed 14 December 2014, <http://www.forces.gc.ca/en/about-org-structure/canadian-joint-operations-command.page>.

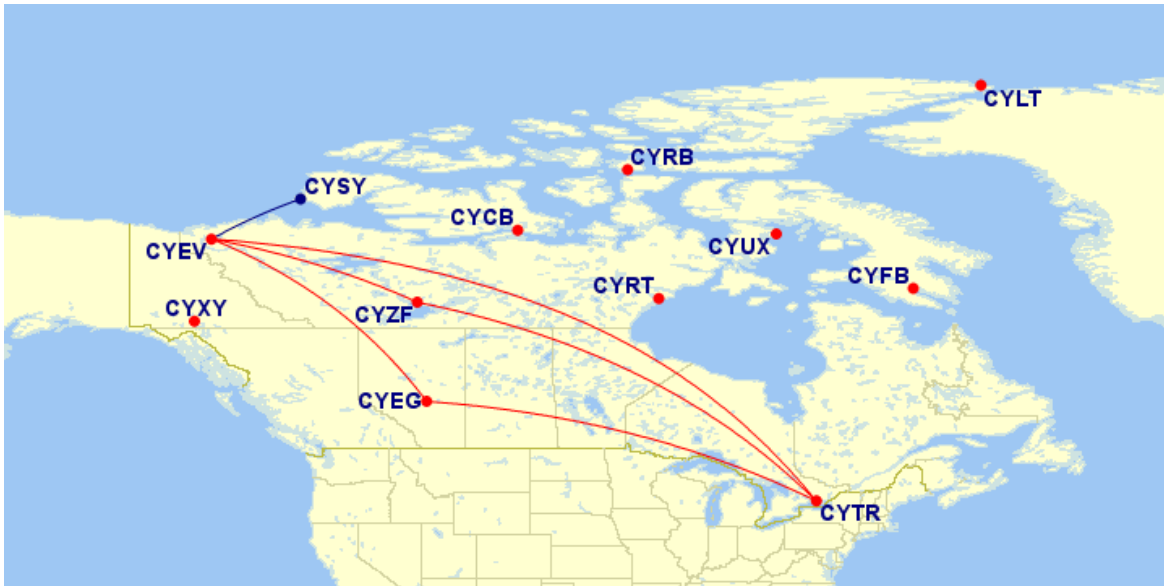


Figure 4.4 – Deployment options for a response from Trenton to Sach's Harbour

Map generated by the Great Circle Mapper (www.gcmap.com) - copyright © Karl L. Schwartz.

Summary

In order to fulfill its mandate in the North, the CAF must be able to project a response anywhere in the Arctic. However, the limited resources of the CAF could not possibly be distributed to cover the vast expanse of Canada's Arctic. The solution for the CAF to be able to meet the expectations of Canadians will be the ability to project a timely and meaningful response. To ensure a timely response, the CAF must have the resources in the North to deliver the effect or to assist other government departments and agencies. Fiscal realities, however, preclude the establishment of such capabilities that cover the entire Arctic. Therefore, the CAF must be able to project a response from its southern bases and Air Mobility will be an essential enabler.

By using a tiered, multi-fleet approach, Air Mobility has the capability to support operations anywhere in Canada's North. Recent investments in the strategic (CC-177) and tactical (CC-130) airlift programs combined with existing utility (CC-138) airlift will enable the CAF solution. By generating a deployable support hub and establishing pre-arranged support

contracts at several strategic locations in the Arctic (Inuvik, Yellowknife, Resolute Bay, and Iqaluit), the CAF will be able to project or support a Government of Canada integrated response to any location in the Arctic. The deployable support hub will be utilized to establish the strategic lines of communication and provide staging and onward movement of the government response. Air mobility will be the backbone of the lines of communication through the use of strategic airlift to the support hub and then tactical and utility airlift to extend the response to the area of operations. By leveraging air power, and particularly Air Mobility, the CAF will have the ability to provide or support a meaningful and timely Government of Canada integrated response throughout the Arctic.

CONCLUSION

Over the last decade, the Canadian government has re-established Arctic sovereignty as a major priority. A catalyst of this has been realization of the effects that climate change will have on the region. One of the greatest concerns is that reduced ice cover will lead to increased commercial shipping, exploration for and exploitation of natural resources, associated environmental and criminal threats of commercial operations, as well as a number of emerging national security concerns. These concerns are being addressed by a series of policy statements that build an integrated WOG approach to Canadian Arctic sovereignty.

In light of the commercial interests and newly emerging threats in a more accessible Arctic, the government of Canada recognized the need for a renewed focus on Arctic policy. With the end of the Cold War, there was an expected peace dividend that translated into diminished concerns over Arctic sovereignty and security. However, this peace dividend never materialized and the Martin Liberal Government realized that Arctic policy had been neglected. In December 2004, a government Northern Strategy was announced. The Northern Strategy was followed up with the Martin Liberal Government's International Policy Statement in 2005, which reflected the renewed attention to Arctic sovereignty. The approach to Arctic sovereignty of this policy emphasized a monitoring function through enhanced surveillance. However, the Martin Liberal Government fell before the policy could be implemented.

In contrast, the Harper Conservative Government made Arctic sovereignty a priority from the outset. Even before elected, Harper's position was foreshadowed in many speeches where he highlighted the priority of strengthening Canadian capability in order to protect Arctic sovereignty. Following the Conservative victory in the 2006 election, the Harper government confirmed their commitment to the Arctic through a series of policy statements. In 2007, the

government announced the plan to purchase Arctic offshore patrol ships, followed by the CFDS in 2008 (which specifically addresses the expectations for the CAF in the North), Canada's Northern Strategy in 2009, and the Statement on Canada's Arctic Foreign Policy in 2010. These policy documents clearly define the government's expectations of the CAF as a key component of the government's integrated approach to Arctic sovereignty. To be an effective partner in the government's integrated approach, the CAF would be expected to play a central role in supporting the integrated response. The RCAF can provide Air Mobility support enabling the CAF to support the projection of a government response anywhere across Canada's vast and austere Northern region.

The CFDS and the recent Arctic policy documents express the government's priority for the CAF. The CFDS defines the three roles and six core missions of the CAF with the priority on the defence of Canada including a specific mention of the Arctic. The importance of the Arctic is expanded upon in Canada's Northern Strategy, which provides the framework for a WOG integrated approach. Canada's Statement on Arctic Foreign Policy expanded upon the theme of exercising Arctic sovereignty and further defined the role and responsibilities, explicitly and implicitly, assigned to the CAF. The collection of these policies served as the framework within which the CDS and Deputy Minister of National Defence crafted their Directive for the DND/CAF in Canada's North.

The common thread throughout the various policy documents and directives is the ability for Canada to project a meaningful and timely response through a WOG integrated approach. For the most part, other government departments and agencies will have the lead for the government response for a crisis in the Arctic. However, the CAF will be instrumental in providing unique

capabilities to support such a response in the harsh and austere conditions of the Canadian Arctic Air Mobility will be an essential enabler.

The challenge for the CAF lies in the enormous area of Canada's Arctic. The Northern region of Canada is sparsely populated and lacks the infrastructure needed to support anything more than the most basic response from the south. The challenges of operating in the North are very similar to, and in some ways more challenging than, expeditionary operations. The lack of robust lines of communications and logistical support means that any integrated response must be self-sufficient so as not to be a burden the local communities. The ability to move personnel and equipment from southern based garrisons via ground transportation is, for all intents and purposes, non-existent as many of the communities are only accessible by air (or in the best case scenario by seasonal winter roads and waterways).

The small size of Canada's military and fiscal realities make it impossible for the CAF footprint to have persistent coverage of the entire Arctic. To overcome this challenge, the CAF will rely on organic mobility resources to project a southern-based Government of Canada integrated response into the North. The RCAF Air Mobility capability can serve as a foundation to meet the challenge of projecting an integrated response from the south to any location in the Arctic. The generation of a deployable support hub and establishment of pre-arranged support contracts at four strategic CC-177 capable locations (Inuvik, Yellowknife, Resolute Bay, and Iqaluit) across the Arctic will allow the CAF to rapidly deploy as lead of or support to an integrated response to a Northern crisis. Through the use of a multi-fleet hub and spoke approach, Air Mobility can be the critical force multiplier that enables the response to be projected anywhere in the Arctic. The CC-177 Globemaster will provide the strategic airlift of the deployable hub as well as the resources required for the response to one of the four CC-177

capable hub locations. If the area of operations is not co-located with the hub, the CC-130J Hercules and/or CC-138 Twin Otter (and in the near future CH-147 Chinook) capability could be used to further extend the footprint of the response beyond CC-177 capable airfields. With a small investment in a pre-packaged deployable support hub and the establishment of pre-arranged support contracts, Air Mobility can be leveraged to provide the CAF with the ability to provide or support a meaningful and timely Government of Canada response anywhere in Canada's Arctic.

As the effects of climate change are manifested, the Arctic will continue to be at the forefront of the Government of Canada agenda. Richard Goette observes that, “[T]he Arctic – and in particular, greater access to it due to a melting polar ice cap and the resulting apprehensions regarding sovereignty – will be a major concern for the Canadian government and the Canadian [Armed] Forces in the decade ahead.”¹⁸² The expeditionary experience of the CAF in Afghanistan over 13 years and particularly the RCAF's ability to support deployed operations over great distances will be invaluable as Canada's Arctic theatre of operations matures. Air Mobility can be expected to play a major role in the renewed focus on Arctic sovereignty and the government's integrated approach to the North.

¹⁸² Richard Goette, “The *Roundel* and Building RCAF Arctic Air-mindedness During the Early Cold War,” in *Sic Itur Ad Astra: Canadian Aerospace Power Studies Volume 4: De-Icing Required! The Historical Dimension of the Canadian Air Force's Experience in the Arctic*, ed. P. Whitney Lackenbauer and W.A. March, (Ottawa: Her Majesty the Queen as represented by the Minister of National Defence, 2012), 67.

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