

# Climate Change, Security & Military Preparedness in North America

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This annotated bibliography is submitted to the North American and Arctic Defence and Security Network (NAADSN), to include a comprehensive list of sources related to the following research questions:

*What impacts might climate change have on CAF and US operations and readiness in North America? How have the national defence teams in Canada and the United States engaged with remote Northern and Indigenous communities to ensure that responsibilities, plans, and activities are understood and rooted in mutual trust and respect? How can NAADSN help raise awareness amongst Northern partners about the changing nature of the threats in the region, including those of a non-military nature?*

## **CANADIAN GOVERNMENT SOURCES**

Allison, D. (May 2013). *Canada and the Arctic Council: An Agenda for Regional Leadership*. Standing Committee on Foreign Affairs and International Development. <https://www.ourcommons.ca/Content/Committee/411/FAAE/Reports/RP6152661/faaerp09/faaerp09-e.pdf>.

- Canada began its 2-year position as chair of the Arctic Council in May 2013. This report was intended to “provide parliamentary input to Canada’s Arctic Council agenda and to identify what the Committee believes are the most pressing challenges facing Arctic states” (p. 1). Like many publications emerging at this time, this report centres around the idea that the Arctic is opening up to new states around the world. As such, the recommendations in this document offer promises to develop diplomatic, regulatory, and practical development to the changing geopolitics of the circumpolar region. The Arctic Council does not make decisions on military operations (outside of Search and Rescue operations) though it offers a useful glimpse into a more international conversation regarding the Arctic, highlighting the key issues faced by Arctic states.

Bernier, M. (Jun 2010). *Canada’s Arctic Sovereignty: Report of the Standing Committee on National Defence*. House of Commons. <https://www.ourcommons.ca/Content/Committee/403/NDDN/Reports/RP4486644/nddnrp03/nddnrp03-e.pdf>.

This report from the Standing Committee on National Defence notes two schools of thought regarding Canadian Arctic sovereignty: one suggesting that new international

interest is little to no threat; the other indicates that increasing interest in the region coupled with increased military capabilities to act in the region requires enhanced defence and monitoring from the Government of Canada as a means to secure the Arctic. This report uses testimonies from Canada's leading political scientists, historians, policymakers, and legal bodies to explore the two arguments on the security of the Arctic region. It summarizes the common understandings from both—these common understandings offer a valuable look at what was the most prominent and agreed upon ideas of the Arctic and its security at the time of the report. This publication is a good resource for testimonies on Arctic topics/challenges from some of Canada's most prominent actors at the time to gain a better understanding of how the Arctic was understood and the challenges that were being addressed at the time. Many of the issues outlined in this publication are still relevant today.

Boucher, D. (2018). *Environmental Factors and Force Development*. PowerPoint slides, Toronto. <https://www.cfc.forces.gc.ca/237/251/boucher-eng.pdf> .

- This is a PowerPoint presentation archived from the Climate Change and its Impacts on National Security symposium hosted by the Centre for National Security Studies (CNSS) in February of 2018. This presentation was delivered by the Director of Capability Integration of the Canadian Armed Forces. These slides highlight some of the key considerations of the CAF as it plans for its future operations in response to climate change. It outlines some of the expected effects that climate change will have on CAF operations, such as how natural disasters and urbanization mean that CAF operational environments will be increasingly urban; how Canada's allies will be affected by climate change as well; and some of the actions that the CAF is taking to reduce its greenhouse gas emissions. Therefore, this source directly responds to the question of how CAF operations might be impacted by climate change and is particularly useful because it provides a variety of the key considerations of CAF operations, such as demographics, allies, human security, and infrastructure.

Brookes, D., D. F. Scott, & P. Rudkin. (2013). *Arctic Surveillance: Civilian Commercial Aerial Surveillance Options for the Arctic*. Defence Research and Development Canada. [https://cradpdf.drdc-rddc.gc.ca/PDFS/unc225/p803734\\_A1b.pdf](https://cradpdf.drdc-rddc.gc.ca/PDFS/unc225/p803734_A1b.pdf).

- This study describes current worldwide surveillance activities that are effective and affordable methods of monitoring large areas and extrapolates them to Canada's North. This study may be useful when considering Canada's own defence options for surveilling and monitoring the Arctic region. The technologies considered in this paper include small remotely piloted planes and vehicles, automatic identification system receivers, and short range radars, all of which offer little maintenance and operating crews.

Bush, E, & Lemmens, D.S. (Eds). (2019). *Canada's Changing Climate Report*. Ottawa: Environment and Climate Change Canada, Government of Canada. [https://www.nrcan.gc/sites/www.nrcan.gc.ca/files/energy/Climate-change/pdf/CCCR\\_FULLREPORT-EN-FINAL.pdf](https://www.nrcan.gc/sites/www.nrcan.gc.ca/files/energy/Climate-change/pdf/CCCR_FULLREPORT-EN-FINAL.pdf).

- This publication, *Canada's Changing Climate Report*, is a recent publication that comprehensively discusses the state of climate change in a Canadian context. It starts with the basics of understanding what climate change is and how it is impacting the nation before moving into projections for the future and detailed descriptions of environmental changes in Canada. While the report is not focused specifically on security or CAF, it acts as an excellent tool for understanding the impacts of climate change in a Canadian context with factual, timely information. This information could be used to infer CAF responses and/or a reliable citation for scientific environmental information.

Canada, Parliament, House of Commons. The House of Commons Standing Committee on Indigenous and Northern Affairs (2019). *A Path to Growth: Investing in the North*. 42nd Parl., 1st sess. Rept. 18. <https://www.ourcommons.ca/Content/Committee/421/INAN/Reports/RP10365843/inanrp18/inanrp18-e.pdf>.

- This report is a study of Northern infrastructure projects and strategies in the context of possible federal support, as well as recommendations to the Government of Canada on how to improve its support of infrastructure development and maintenance in the North. It briefly discusses infrastructure as a vital factor in the development and maintenance of Arctic sovereignty (p. 22). In the Conservative Party of Canada's Dissenting Report, they call on the Department of Indigenous and Northern Affairs and the Department of National Defence to explore avenues that can be taken to protect sovereignty of Canadian waters and territories, in consultation with territorial governments and Inuit Peoples. This report is useful in contextualizing the degree to which Indigenous consultation is prioritized by the federal government when considering issues of Arctic sovereignty and military protection.

Canada, Parliament, House of Commons. Standing Committee on Indigenous and Northern Affairs. (2017). Evidence. 42nd Parliament, 1st Session, Meeting no. 83. <https://www.ourcommons.ca/DocumentViewer/en/42-1/INAN/meeting-83/evidence>.

- This evidence is from a meeting held on Fire Safety and Emergency Management in Indigenous Communities, including testimony from Al Richmond, Chair of the Cariboo Regional District. This testimony emphasized the need to develop a relationship between the Canadian Armed Forces and rural Indigenous communities on a daily basis, so as to avoid a fear factor associated with being put under military rule during emergency response situations (See specifically: 12:55-13:00).

Canada, Parliament, House of Commons. Standing Committee on Indigenous and Northern Affairs. (2017). Evidence. 42nd Parliament, 1st Session, Meeting no. 84. <https://www.ourcommons.ca/DocumentViewer/en/42-1/INAN/meeting-84/evidence>.

- This evidence is from a meeting held on Fire Safety and Emergency Management in Indigenous Communities, including testimony from Jean-Philippe Tizi (Chief of Domestic Operations, Canadian Red Cross). Tizi makes three recommendations, the third which suggests the need for increased collaboration with Indigenous peoples and communities in preparing and responding to emergencies of all kinds (See specifically: 11:35-11:40).

Canada, Parliament, House of Commons. Standing Committee on Indigenous and Northern Affairs. (2017). Evidence. 42nd Parliament, 1st Session, Meeting no. 88. <https://www.ourcommons.ca/DocumentViewer/en/42-1/INAN/meeting-88/evidence>

- This evidence is from a meeting held on Fire Safety and Emergency Management in Indigenous Communities, including testimony from Chief Tammy Cook Searson of the Lac La Ronge Indian Band. This testimony speaks to Canadian Armed Forces conduct during Operation LENTUS in Northern Saskatchewan, and concerns of First Nations expertise not being taken seriously by those involved in the federal emergency response (See specifically: 12:35-12:40).

Canada, Parliament, House of Commons. Standing Committee on Indigenous and Northern Affairs. (2018). Evidence. 42nd Parliament, 1st Session, Meeting no. 93.

<https://www.ourcommons.ca/DocumentViewer/en/42-1/inan/meeting-93/evidence>

- This evidence is from a meeting held on Fire Safety and Emergency Management in Indigenous Communities, including testimony from Dr. Laurence Pearce. This testimony speaks to serious trauma faced by Indigenous communities associated with evacuations in emergency situations. This trauma is exacerbated by Indigenous communities' strong ties to their land, the involvement of outsiders in emergency response with little knowledge of Indigenous pedagogy, and the issue of capacity in many remote Indigenous communities (See specifically: 16:00-16:10).

Canada, Parliament, House of Commons. Standing Committee on Indigenous and Northern Affairs. (2020).

Evidence. 43rd Parliament, 1st Session, Meeting no. 6. <https://www.ourcommons.ca/DocumentViewer/en/43-1/INAN/meeting-6/evidence>

- This evidence is from a meeting held on The Government's Response to the COVID-19 Pandemic, including testimony from Hon. Marc Miller (Minister of Indigenous Services Canada). This testimony discusses the role that the Canadian Rangers are currently playing in helping to distribute food and supplies to remote Indigenous communities in Nunavik, northern Saskatchewan, northern Ontario and northern Quebec (See specifically: 14:30-14:35).

Canada, Parliament, House of Commons. Standing Committee on National Defence. (2019). Evidence. 42nd

Parliament, 1st Session, Meeting no. 126. <https://www.ourcommons.ca/DocumentViewer/en/42-1/nddn/meeting-126/evidence>

- This evidence is from a meeting held on Diversity within the Canadian Armed Forces, and involved a testimony from Lieutenant-Colonel (Retired) John Selkirk (Executive Director, Reserves 2000). This evidence suggests benefits of the localization of recruitment practices in Northern Canada, so as to decentralize and make the process more accessible for those living in remote regions (See specifically: 16:00-16:05).

Canada, Parliament, House of Commons. Standing Committee on National Defence. (2019). Evidence. 42nd

Parliament, 1st Session, Meeting no. 128. <https://www.ourcommons.ca/DocumentViewer/en/42-1/nddn/meeting-128/evidence>

- This evidence is from a meeting held on Diversity within the Canadian Armed Forces, and involved a testimony from Lieutenant-General Charles Lamarre (Defence Champion, Visible Minorities, Department of National Defence) and Lieutenant-General Jean-Marc Lanthier (Defence Champion, Indigenous Peoples, Department of National Defence). This evidence is important as it speaks to the work that the champion for Indigenous peoples is engaged in, including: modifying the dress manual policy to include clauses pertaining to cultural and religious accommodations; incorporating Indigenous values of medicine and healing; and streamlining and standardizing recruiting processes to ensure accessibility for new applicants. Further, the testimony gives an approximate number of 2,800 Indigenous members serving in the Canadian Armed Forces - or 2.8% - as compared to the Canadian Rangers, of which 5,200 are Indigenous, making up about 26% of the total (See specifically: 15:35-15:40, & 16:10-16:15).

Canada, Parliament, House of Commons. Standing Committee on National Defence. (2019). Evidence. 42nd Parliament, 1st Session, Meeting no. 130. <https://www.ourcommons.ca/DocumentViewer/en/42-1/nddn/meeting-130/evidence>.

- This evidence is from a meeting held on Diversity within the Canadian Armed Forces, and involved testimony from Indigenous advocate and past Canadian Armed Forces member Tasina Pope, and Edward Lerat (Third Vice-Chief, Federation of Sovereign Indigenous Nations). This evidence is significant as it includes personal testimonies of Indigenous experience serving for the Canadian Armed Forces, as well as concrete suggestions to indigenize the Canadian Armed Forces, including: incorporation of a smudge room; honorariums for elders; and support for traditional spiritual and cultural healing practices.

Canada, Parliament, House of Commons. Standing Committee on National Defence. (2019). Improving Diversity and Inclusion in the Canadian Armed Forces: Report of the Standing Committee on National Defence. 42nd Parliament, 1st Session.

<https://www.ourcommons.ca/Content/Committee/421/NDDN/Reports/RP10573700/nddnrp17/nddnrp17-e.pdf>.

- This report is intended to focus on the issues raised to help transform the Canadian Armed Forces into an organization that both leverages operational and institutional advantages associated with diversity, and that understands this diversity as necessary to success. This report is useful in determining prominent issues and objectives to achieving these goals of diversity, as they are understood by the federal government through the Standing Committee on National Defence.

Canadian Forces College. (2018). *Climate Change: A Threat Multiplier?* Ottawa: Centre for National Security Studies. <https://www.cfc.forces.gc.ca/237/139-eng.html>.

- In February 2018, the Centre for National Security Studies hosted a symposium exploring “Climate Change and its Impacts on National Security”. The goal of the symposium was to “leverage research and discussion within public, private, and academic circles to consider how climate change can affect national security, and how we might plan and prepare for these challenges”. The above citation provides an overview of the symposium, as well as embedded links to resources from several of the presentations given by professionals in this field. This source may be a useful tool in understanding how the Canadian Forces itself understands and addresses climate change within their department.

Christensen, K. D. (2011). *China in the Arctic: Implications of China's Arrival in an Ice-Free Arctic*.

Defense Research and Development Canada. [https://cradpdf.drdc-rddc.gc.ca/PDFS/unc244/p535967\\_A1b.pdf](https://cradpdf.drdc-rddc.gc.ca/PDFS/unc244/p535967_A1b.pdf).

- “This research paper assesses the People’s Republic of China’s (PRC’s) long-term interests and activities in the Arctic. It is aimed at assessing China’s interests in the Arctic, its current activities, and its motivation for allocating increased resources for high Arctic research” (abstract). This paper considers Canada’s Arctic as a strategic region and that the Armed Forces “should maintain its multi-purpose combat capabilities” to prevent the potential exploitation of Canada’s Arctic region by non-circumpolar states. Because increased interest in the Arctic is an ongoing issue for Canada, this source offers useful information on Canada’s duty to protect the region from exploitation. It addresses the challenges of this as well Canada’s capabilities in their defence strategies of the Arctic.

Crown-Indigenous Relations and Northern Affairs Canada. (2019). *Arctic and Northern Policy Framework: Safety, security, and defence chapter*. <https://www.rcaanc-cirnac.gc.ca/eng/1562939617400/1562939658000>

- This chapter of the Arctic and Northern Policy Framework addresses the objectives and associated activities that the Government of Canada has committed to pursue through to 2030, in an attempt to foster a safe, secure, and well-defended Canadian Arctic. (See specifically: Objective 1: Strengthen Canada's cooperation and collaboration with domestic and international partners on safety, security and defence issues.) This particular objective addresses the Canadian Armed Forces' intention to continue deepening its relationships with Indigenous governments, organizations, and Northern communities, as well as engaging with local Indigenous populations as part of its Arctic operations and exercises.

Department of National Defence. (2018). ARCHIVED - Aboriginal Peoples in the Canadian Armed Forces. <http://www.forces.gc.ca/en/news/article.page?doc=aboriginal-peoples-in-the-canadian-armed-forces/hie8w98n>.

- This archived web page displays various ways in which First Nations, Métis and Inuit peoples have made contributions to the Canadian Armed Forces throughout history. (See specifically: Canadian Armed Forces Experience Programs for Aboriginal People; Aboriginal Spirituality; & Defence Aboriginal Advisory Group). This page is useful in understanding past and current initiatives that the Canadian Armed Forces has taken in order to support Indigenous communities, and opportunities for Indigenous peoples within the military.

Department of National Defence. (2008). *Canada First Defence Strategy*. Ottawa: Government of Canada. [https://www.canada.ca/content/dam/dndmdn/migration/assets/FORCES\\_Internet/docs/en/about/CFDS-SDCD-eng.pdf](https://www.canada.ca/content/dam/dndmdn/migration/assets/FORCES_Internet/docs/en/about/CFDS-SDCD-eng.pdf).

- *Strong, Secure and Engaged* is Canada's current defence policy. A keyword search on the document suggests that climate change is mentioned 13 times, many of which coincide with discussion of the Arctic which is mentioned 77 times. The document addresses the nexus that lies where climate change and security meet. It describes a situation where climate change may aggravate already existing vulnerabilities such as weak governance or worsen sources of tension such as resource scarcity. The global nature of climate change and the visible results left in its wake are likely to generate humanitarian crises at increased frequency, requiring greater demand for military intervention and search and rescue capabilities. These types of issues are why the defence policy states that climate change needs to be considered through a security lens. The policy also details that the defence team is taking a climate-forward approach by proactively mitigating the environmental impacts of military activities through initiatives such as green-house gas emissions and protection of species at risk. The policy details that National Defence represents more than 50% of the Government of Canada's greenhouse gas emissions and therefore has a large role to play in assisting the government to meet its climate targets. Further, the 20-year plan aims to increase the effectiveness of the Canadian Forces. Included in this was the plan to increase Arctic sovereignty using the RCMP and the Canadian Coast Guard. The Government planned to invest close to \$490 million over a 20-year period, increasing the annual budget from approximately \$18 billion in 2008-2009 to over \$30 billion in 2027-28.

Department of National Defence. (2017). *Strong, Secure, Engaged: Canada's Defence Policy* (D2-386/2017E). Ottawa: Government of Canada. <http://dgpaapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf>.

- *Canada First Defence Strategy* under the Harper government does not mention climate change at all. It does mention that changing weather patterns and environmental degradation have impacts of CAF operations, but it doesn't explicitly address the issue of climate change. When the environment is discussed in this policy it is typically in relation to how CAF will respond to environmental uncertainty, rather than their commitment to mitigating it, beyond mention of their commitment to preservation of heritage buildings and promotion of environmental stewardship listed as an infrastructure challenge. This discrepancy between the two defence strategies suggests that the government has become increasingly aware of, and committed to addressing climate change, particularly through a security lens.

Department of National Defence. (Mar 2017). *Defence Administrative Orders and Directives*. Government of Canada. <https://www.canada.ca/en/department-national-defence/corporate/policies-standards/defence-administrative-orders-directives.html>.

- This source is a comprehensive collection of Defence Administrative Orders and Directives (DAOD) that have been issued by or under the authority of the Deputy Minister and the Chief of the Defence Staff compiled by the Department of National Defence and Canadian Armed Forces corporate administrative direction.

Department of National Defence. (2017). *Defence Energy and Environment Strategy*. Ottawa: Government of Canada. <https://www.canada.ca/content/dam/dnd-mdn/documents/reports/2017/20171004-dees-en.pdf>.

- In analyzing how CAF operations could be impacted by climate change, it is important to consider how CAF operations have adapted to federal sustainability and emissions objectives. This source outlines some of the federal climate commitments, Defence objectives, and how the DND measures its emissions. There is a section on how the CAF manages hazardous waste, for example, in addition to descriptions of other ways in which Defence has modified its operations to reduce greenhouse gas emissions, like investing in greener infrastructure. This source is relevant to the research topic because it directly addresses the fundamentals of CAF operations and infrastructure and how they have been modified precisely in recognition of/response to climate change.

Department of National Defence. (Feb 2020). *Future Force Design*. Government of Canada. <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/departmental-results-report/2018-19-index/results-achieved/future-force-design.html>.

- “Develop and design the future force through a deep understanding of the future operating environment and security risks to Canada and Canadian interests. Enhance Defence’s ability to identify, prevent, adapt and respond to a wide range of contingencies through collaborative innovation networks and advanced research” (abstract). This source is useful in determining which innovative projects are ongoing in the Arctic region to respond to security threats.

Department of National Defence. (2018, April 7). Joint Task Force North. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/conduct/regional-task-force/north.html>.

- This web page identifies the Joint Task Force North (JTFN) as one of the six regional joint task forces of the Canadian Armed Forces. The JTFN is responsible for leading continental operations in the North, including but not limited to: any request for Canadian Armed Forces intervention for disaster relief; any request for Canadian Armed Forces support in critical incidents; and any request for Canadian Ranger support to ground search and rescue. This website is useful in identifying partners with which JTFN conducts their routine missions, including: the federal government; territorial governments; northern communities; and defence forces from other countries.

Department of National Defence. (2014). *The Future Security Environment, 2013-2040*. Ottawa: Government of Canada. [http://publications.gc.ca/collections/collection\\_2015/mdn-dnd/D4-8-2-2014-eng.pdf](http://publications.gc.ca/collections/collection_2015/mdn-dnd/D4-8-2-2014-eng.pdf).

- Although this revised publication is now six years old, it remains relevant to the research topic as it highlights how and which issues related to climate change need to be considered when preparing CAF operations. The most relevant chapter to the research question is Chapter 2, titled “Economic, Environmental and Social Trends.” Although this section makes prominent mention of the Arctic, it also contains more general information on the effects of climate change. Text boxes titled “military implications” explicitly highlight how the effects of climate change are expected to impact CAF operations. One example is how natural disasters could lead to displacements of populations into urban centres, for instance, making pandemics and the spread of diseases more probable. In this manner, this publication is important to consider because it considers less traditional security concerns, such as pandemics, that need to be considered when preparing/planning CAF operations. The current pandemic demonstrates how these less traditional security concerns need to be considered, as the responses to these threats are not proving to be effective in the southern U.S. and Central America, which could affect the operational context and nature of CAF operations (were they asked to provide some kind of assistance in these regions).

Emergency Management Policy and Outreach Directorate. (2017). *An Emergency Management Framework for Canada* (3<sup>rd</sup> edition). Ottawa: Public Safety Canada. <https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/2017-mrgnc-mngmnt-frmwrk/2017-mrgnc-mngmnt-frmwrk-en.pdf>.

- The purpose of the Emergency Management Framework for Canada is “recognizing that Emergency management is a shared responsibility across all sectors of society and aims to guide and strengthen the way governments and partners assess risks and work together to prevent/mitigate, prepare for, respond to, and recover from threats and hazards that pose the greatest risk to Canadians”. The revised (most recent) version underscores the linkages between climate change and emergency management. It discusses the need for considering climate change proactively in order to develop effective risk management practices. It discusses governance mechanisms, coordination instruments, and a way forward for emergency management in Canada. This framework is used by other departments to inform strategies and policies.

Flaherty, J. M. (29 Mar 2012). *Economic Action Plan 2012: Jobs, Growth, and Long-Term Prosperity*. Government of Canada. <https://www.budget.gc.ca/2012/plan/pdf/Plan2012-eng.pdf>.

- The last budget of the Harper government was in 2012. Interestingly, the budget rarely mentions Arctic spending beyond its investment in the establishment of a Canadian High Arctic Research Station to anchor the “network of research infrastructure across Canada’s North, making significant contribution towards the Government’s Northern Strategy” (p. 79); and the renewal of the Canadian Coast Guard Fleet which offers maritime protection in the high Arctic (p.158). This source offers a good comparison



against the Trudeau government's recent budget, which dedicated more funding to Arctic communities and programs.

Gizewski, Peter, and Katherine Banko. (2019). *Assessing the Implications of Climate Change on Canada's Army: Research Strategy and Method*. Ottawa: DRDC- Centre for Operational Research and Analysis. [https://cradpdf.drdc-rddc.gc.ca/PDFS/unc341/p811067\\_A1b.pdf](https://cradpdf.drdc-rddc.gc.ca/PDFS/unc341/p811067_A1b.pdf).

- In the style of research proposal, this is a very short document. It raises numerous questions about the effects of climate change on CAF operations, such as what some of the effects of climate change could be on "soldier health (e.g. dehydration, heat exhaustion)" and on "readiness (e.g., delays)". This source pairs well with Denis Boucher's PowerPoint slides, as both outline aspects of CAF readiness and operations that need to be considered and that other sources listed in this bibliography could be used to answer.

Global Affairs Canada. (2017). *Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad*. [https://www.international.gc.ca/worldmonde/assets/pdfs/canada\\_arctic\\_foreign\\_policy-eNg.pdf](https://www.international.gc.ca/worldmonde/assets/pdfs/canada_arctic_foreign_policy-eNg.pdf).

- This statement outlines four action areas to advance Canadian interests both domestically and internationally in the North, being: exercising sovereignty; promoting economic and social development; protecting our environmental heritage; and improving and devolving Northern governance. (See specifically: Improving and Developing Governance: Empowering Peoples of the North). This section speaks to Canada's intention of engaging with Northerners on Canada's Arctic foreign policy, of supporting Indigenous Permanent Participant organizations in Canada on the Arctic Council, and providing Canadian youth with opportunities to participate in the circumpolar dialogue. The statement references the expansion of the Canadian Rangers, drawn primarily from Indigenous communities, so as to provide a military presence in remote parts of the nation.

Government of Canada. (2019). *Current operations list*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/list.html>.

- This webpage provides an overview of current operations CAF is involved in. It is a useful resource because the reader is quickly able to determine the projects CAF is working on both within Canada and around the world. As well, each operation has a brief description highlighting the project, and links to further information if needed.

Government of Canada. (2019). *Disaster Assistance Response Team*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/types/dart.html>.

- The Disaster Assistance Response Team (DART) is how CAF responds to international emergencies (such as those covered by Operation LENTUS and Operation RENAISSANCE below). This webpage provides links to understand how the DART responds to emergencies, how DART is organized and past DART deployments. The last recorded DART deployment was in 2015 to Nepal as a result of the earthquake. It can be assumed that DART may be required to become increasingly active, as the results of climate change are predicted to overlap closely with disaster response.

Government of Canada. (2019). *Full Government of Canada Response to the Recommendations of the Twenty-Fourth Report of the Standing Committee on Foreign Affairs and International Development Entitled: Nation-Building at Home, Vigilance Beyond: Preparing for the Coming Decades in the Arctic*. Government of Canada (2019). [https://www.ourcommons.ca/content/Committee/421/FAAE/GovResponse/RP10594720/421\\_FAAE\\_Rpt24\\_GR/421\\_FAAE\\_Rpt24\\_GR-e.pdf](https://www.ourcommons.ca/content/Committee/421/FAAE/GovResponse/RP10594720/421_FAAE_Rpt24_GR/421_FAAE_Rpt24_GR-e.pdf).

- The government's response to the Standing Committee on Foreign Affairs and International Development reiterates the work being done on the Arctic and Northern Policy Framework and advancement of Northern interests. Not every commendation is addressed, but those that are primarily focus on already ongoing efforts by the Government of Canada to address issues raised. This source is most useful when looked at in conjugation with the original Standing Committee's recommendations.

Government of Canada. (2010). *Government of Canada Response to Report of the Standing Senate Committee on Fisheries and Oceans: Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard*. Government of Canada. <https://www.dfo-mpo.gc.ca/reports-rapports/arctic-arctique-2010/resp-arctic-arctique-eng.htm>.

- The response from the Government of Canada to the standing Committee on Fisheries and Oceans' report *Controlling Canada's Arctic Waters* was mixed. While the government agreed with many of the general sentiments in the report, including that Canada must exercise a strong presence in the Arctic, it stated that it "does not support or only partially supports the majority of the Senate SCFOFO recommendations..." The response outlines the recommendations which the Government of Canada agreed with, and those it did not. This resource will be a valuable source when tracking the changes of Canada's Arctic presence and projects in the Arctic during and following this timeline.

Government of Canada. (Oct 2009). *Government of Canada Response to Report of the Standing Senate Committee on Fisheries and Oceans: Rising to the Arctic Challenge: Report on the Canadian Coast Guard*. Government of Canada. <https://www.dfo-mpo.gc.ca/reports-rapports/200910a-eng.htm>.

- The Government of Canada's response to the Standing Senate Committee's recommendations in the *Rising to the Arctic Challenge* report provides overview of its Northern Strategy at the time and reiterates its dedication to security and defence in the Arctic region. The response expands on their 4 priorities, which are: exercise Canada's Arctic sovereignty as international interest in the region rises; encourage social and economic development and regulatory improvements that benefit Northerners; adapt to climate change and ensure sensitive ecosystems are protected for future generations; and provide Northerners with more control over their livelihoods. Like many government responses, the publication outlines the efforts that were being already taken by the Government of Canada to protect and serve the Canadian Arctic at the time.

Government of Canada. (Oct 2010). *Government of Canada Response to the Third Report of the Standing Committee on National Defence: Canada's Arctic Sovereignty*. Government of Canada. <https://www.ourcommons.ca/DocumentViewer/en/40-3/NDDN/report-3/response-8512-403-84>.

- The Government of Canada's response to *Canada's Arctic Sovereignty* offers a more in-depth view of Canada's Arctic policies and intentions. The government mostly agreed with the recommendations put forth by the Standing Committee on National Defence but disagreed with a couple recommendations that made their governing regimes "redundant" in their roles and responsibilities. The response by the

government in this source will be useful in the interpretation of Arctic governance policies at this time as they provide a more applied lens to the policies.

Government of Canada. (2018). *Operation LENTUS*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-lentus.html>.

- Operation LENTUS is CAF's response to natural disasters in Canada. If provincial and territorial authorities become overwhelmed when responding to a major natural disaster in Canada, they can request help from CAF. Natural disasters CAF may respond to through Operation LENTUS include snowstorms, floods, forest fires and hurricanes. The government website page for Operation LENTUS has archived information about operations taking place across Canada as far back as 2010. Considering that there are strong links between climate change and the rate and severity of natural disasters, being aware of Operation LENTUS is important.

Government of Canada. (2018). *Operation NANOOK*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-nanook.html>.

- This web page identifies Operation NANOOK, involving five deployments throughout the year across Canada's three Northern territories. The operation aims to: guard Canada's sovereignty over its northernmost regions; improve the way it operates in Arctic conditions; improve coordination with Indigenous, federal and territorial governments and northern partners; and work with mission partners to best respond to safety and security issues in the North. (See specifically: Canadian Armed Forces relationship with Northern partners; & past deployments 2015, 2018, 2019). This web page is useful as it identifies Indigenous communities as at the heart of Canada's North, and the Canadian Armed Forces' intention to deepen their relationship with Indigenous communities throughout NANOOK.

Government of Canada. (2018). *Operation NUNAKPUT*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/recently-completed/operation-nunakput.html>.

- This archived web page provides information on Operation NUNAKPUT, a Canadian Armed Forces operation to show a federal presence and conduct surveillance in Canada's North. It occurred each year from 2007 to 2017 and took place around the regions of: the Mackenzie River, Great Slave Lake, and Beaufort Sea region of the western Arctic. Now, this Operation (along with Operation NUNALIVUT), are all combined under Operation NANOOK. This web page alludes to the Canadian Armed Forces working with Northern partners on community engagements, training opportunities, and liaising with civilian and government leaders at the community level. (See specifically: past deployments 2012, 2016, 2017).

Government of Canada. (2018). *Operation NUNALIVUT*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/recently-completed/operation-nunalivut.html>.

- This web page provides information on Operation NUNALIVUT, a Canadian Armed Forces operation to show a federal presence in the North. Operation NUNALIVUT was enacted to: assert Canada's legal status over its northernmost regions; show that it can operate in the harsh winter conditions in the remote High Arctic; practice its response to any situation in Canada's North; support scientific research in the Arctic in a meaningful way; and show that it can work well in the High Arctic with military allies and other Canadian government partners. Now, this Operation (along with Operation NUNAKPUT), are all combined under Operation NANOOK. This web page is useful in identifying the type of regional

Indigenous organizations the Canadian Armed Forces conducts their missions cooperatively with (See specifically: past deployment 2018).

Government of Canada. (2020). *Operation RENAISSANCE*. <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-rennaissance.html>.

- Operation RENAISSANCE is the activation of Contingency Plan RENAISSANCE which provides direction to CAF in the event that CAF is deployed to assist with a disaster overseas. Through the archived section of past deployments, it can be seen that these disasters are often the result of environment-related causes such as the Australian wildfires in 2020 or Hurricane Dorian in the Bahamas in 2019. It has been predicted that with the rise of climate-related disasters around the world, CAF may be required to assist overseas at increased rates, in which case Operation RENAISSANCE will become increasingly relevant.

Government of Canada (2010). *Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad*. Government of Canada. [https://www.international.gc.ca/world-monde/assets/pdfs/canada\\_arctic\\_foreign\\_policy-eng.pdf](https://www.international.gc.ca/world-monde/assets/pdfs/canada_arctic_foreign_policy-eng.pdf).

- This 2010 statement further details Canada's four pillars outlined in the 2009 Northern Strategy: Arctic sovereignty, economic and social development, environmental protection, and Northern governance. The Statement details the ways in which the four pillars will be addressed on an international level. For example, how to engage with neighbouring states to resolve boundary issues, securing international recognition for the full extent of the extended continental shelf, creating appropriate international conditions for sustainable development, and seeing trade investments and opportunities, among many other items. This source will provide a detailed look at how Canada's Arctic goals are being addressed at an international level.

Government of Canada. (2016). Parliament. House of Commons. Standing Committee on National Defence. Evidence. (Issue No. 25). 42<sup>nd</sup> Parliament, 1<sup>st</sup> Session. <https://www.ourcommons.ca/content/Committee/421/NDDN/Evidence/EV8565937/NDDNEV25-E.PDF>.

- Although this meeting was not on the topic of climate change, the effects of climate change on Defence were mentioned numerous times in relation to the Canadian navy and military preparedness. One of the speakers at the committee, Dr. Robert Huebert, a political science professor at the University of Calgary, noted that climate change is expected to place a greater strain on the Canadian Navy, as its effects will become something that the navy will be expected to respond to in addition to its defence responsibilities, both in terms of disaster management as well as to respond to geopolitical violence. Consequently, he stressed the importance for a greater navy capacity and an improved maritime strategy so that Defence will be able to respond to this greater variety of threats.

These references tie into the topic of CAF readiness. In comparison to other sources that reference military resources and infrastructure emphasize the use of greener technology, Dr. Huebert's response implies that readiness will also depend on strategies to determine how these resources are deployed. Although this source does not directly address CAF operations in the southern U.S. and Central America, given that Central America and the southern U.S. are expected to suffer from more natural disasters, discussions of the CAF likely needing to provide more disaster relief and humanitarian assistance implicitly addresses these regions.

Government of Canada. (2016). Parliament. House of Commons. Standing Committee on National Defence. Evidence. (Issue No. 26). 42<sup>nd</sup> Parliament, 1<sup>st</sup> Session. (Online).

<https://www.ourcommons.ca/content/Committee/421/NDDN/Evidence/EV8582958/NDDNEV26-E.PDF>.

- This is a testimony by Stephen Burt, the Assistant Chief of Defence Intelligence, to the Standing Committee on National Defence on the topic of global and Canadian maritime threats. He identified climate change as a 'geopolitical reality' that needs to be recognized because, on a global scale, there will be more natural disasters and a greater need for humanitarian responses. The members of this committee asked him how these events may also lead to more security issues regarding migration. Mr. Burt was hesitant to hypothesize on how these displacements may result in increased conflicts because he claimed that these questions can only be considered on a short-term basis. He stated that these types of longer-term projections pertain to the scientific realm and that Defence uses long-term projections when considering what kind of technology it has to purchase to face future threats, but not to determine its operations. This response was surprising to one of the committee's members.

This source is relevant because it provides insight into CAF planning. Mr. Burt's response, however, did not appear to align with the CAF publications in terms of the urgency and effects of climate change. He appeared to be more focused on issues that present traditional and imminent threats to the CAF. In this manner, this dialogue is reminiscent of the debate outlined by Brzoska regarding considerations of climate change as a security issue and what kind of security issue. Given the expected effects of climate change on migration and how migration is impacting and could further impact Canada's allies, it is important to analyze CAF responses on the topic.

Indian Affairs and Northern Development. (2009). *Canada's Northern Strategy: Our North, Our Heritage, Our Future*. Government of Canada. <http://library.arcticportal.org/1885/1/canada.pdf>.

- This strategy emphasizes the importance of Northern Canada to Canada's identity as a country. With its importance comes responsibility to protect. To meet the challenges and opportunities of the Canadian Arctic, this strategy identifies four priority areas: Arctic sovereignty, protecting Arctic environmental heritage, promoting social and economic development, and improving and developing Northern governance. Overall, the Northern Strategy reinforces messages of partnership between the federal government and its Northern citizens as well as between Canada and its circumpolar neighbours. This now outdated strategy can be used as a comparison source to determine how policy around the protection of Canada's Arctic has evolved over time.

Lang, D, & Jaffer, M. (2017). *Military Underfunded: The Walk Must Match the Talk*. Report of the Standing Senate Committee on National Security and Defence. Government of Canada.

[https://sencanada.ca/content/sen/committee/421/SECD/Reports/DEFENCE\\_DPR\\_FINAL\\_e.pdf](https://sencanada.ca/content/sen/committee/421/SECD/Reports/DEFENCE_DPR_FINAL_e.pdf).

- This report is focused on broad issues related to the Canadian military and the defence policy review. It takes into account Canada's security needs, problems with military equipment, budgets, risks to critical infrastructure and the need for more frequent reviews. On page 13 it discusses climate change in relation to "protecting national sovereignty and our offshore economic zone" by identifying that the Arctic will become more accessible due to climate change. It also touches on page 28 about the Canadian Space Agency in terms of surveillance for monitoring climate change through RADARSAT Constellation Mission's Earth observation satellites.

Levitt, Michael. (Apr 2019). *Nation-Building at Home, Vigilance Beyond: Preparing for the Coming Decades in the Arctic*. House of Commons (April 2019). <https://www.ourcommons.ca/Content/Committee/421/FAAE/Reports/RP10411277/faaerp24/faaerp24-e.pdf>.

- This report from the House of Commons Standing Committee on Foreign Affairs and International Development contains a number of recommendations in response to the changing geopolitics of Canada's Arctic region. The recommendations are focused on ensuring "that the government is able to assert, now and decades into the future, exclusive and effective control over Canada's Arctic waters and territory through domain awareness, regulation, stewardship, and enforcement, all of which can be solidified through meaningful partnerships with Canada's Arctic inhabitants" (p. 1). The report details the security and defence challenges in the Arctic as well as the imperative need to protect and support Arctic communities, Indigenous empowerment, and Arctic sovereignty. The recommendations in this source demonstrate what the House of Commons Standing Committee and partners considered the most pressing challenges to the Arctic region and ways to address them. Further, the report discusses the significant impacts that climate change has on the circumpolar Arctic, from altered maritime geography to international interests in the region. This source will be valuable when examining the current and ongoing geopolitical issues in the Arctic region.

Morneau, W. F. (Mar 2019). *Budget 2019: Investing in the Middle Class*. Government of Canada, Ministry of Finance (19 Mar 2019). <https://www.budget.gc.ca/2019/docs/plan/budget-2019-en.pdf>.

- The 2019 Budget focuses heavily on Canada's middle class. The budget includes several commitments to Northern investment, including funding for Northern post-secondary schooling, a National Food Policy, a commitment to internet for all, and additional social welfare issues. Part 4, entitled "Building a Better Future for Canada's North," is of particular interest for this project. This section includes investment plans of more than \$700 million over a 10-year period to be focused specifically on the needs of Arctic and Northern communities. Part of this investment will also go towards environmental protection efforts, including the Polar Continental Shelf Program, ongoing scientific research in the High Arctic, and Natural Resources Canada's projects. This source will illustrate how and where the federal budget will be spent. Where this money is invested will determine, to a large extent, the priorities of the federal government.

Mugridge, D., P. Avis, & P. Race. (Jul 2011). *Arctic Planning Scenarios: Safety and Security Scenario*. Defence Research and Development Canada. [https://cradpdf.drdc-rddc.gc.ca/PDFS/unc125/p535156\\_A1b.pdf](https://cradpdf.drdc-rddc.gc.ca/PDFS/unc125/p535156_A1b.pdf).

- This report is "focused on a public safety and security-centric response scenario. The scenario makes use of the [Capability inventory Tools] to present an overview of the current situation, presents a projection out to 2020 to set context for a security environment in which illegal trafficking via northern routes poses a significant challenge to security in the Arctic. It is designed to stimulate several functions and mandates involved in Canadian emergency response and management, focusing on eliciting a Whole of Government response" (p.iii). This report evaluates current and potential future capabilities in Canada's Arctic. Because it builds on select historical trends, current events, and academic projections, there is a wide variety of useful information when considering the security of Canada's Arctic from a defence standpoint.

Natural Resources Canada. (2020). Canada's Climate Change Adaptation Platform.

<https://www.nrcan.gc.ca/climate-change/impacts-adaptations/what-adaptation/adapting-our-changing-climate/10027>.

- Canada's Climate Change Adaptation Platform was established in 2012 and is "a national forum that brings together key groups in Canada to collaborate on climate change adaptation priorities". It recognizes the risks presented by climate change and the ways in which these risks cut across various sectors. This source provides connections to the Adaptation Platform's Working Group reports that detail projects being undertaken with detailed breakdowns of what they entail, and the budgets allowed.

Neill, D.A. (2009). *A Strategic Framework for Exploring Alternative Energy options in DND/CF*. Ottawa: Defence R&D Canada. [https://cradpdf.drdrddc.gc.ca/PDFS/unc94/p531344\\_a1b.pdf](https://cradpdf.drdrddc.gc.ca/PDFS/unc94/p531344_a1b.pdf).

- This document is older, but it provides interesting insight into how CAF operations could change to become more sustainable. Divided into three chapters, it addresses the nature and degree of greenhouse gas emissions and fossil fuel consumption within the CAF and, consequently, how such consumption and emission could be reasonably and economically mitigated through the use of alternative energy sources. There is mention, for instance, of how relying less on fossil fuels may mean using nuclear power for naval vessels, which is relevant to the research topic because among the suggestions in the sources listed in this bibliography, some sources have called for an expansion of defense capabilities to respond to climate change. This source contributes to the group of publications that outline that a priority for CAF operations in response to climate change should be to adapt its operations so as to reduce its environmental impact. This source relates to (and in some ways appears to be a precursor to) the *Defence Energy and Environment Strategy* published by the Canadian government in 2017.

Northern Affairs Canada. (2019). *Canada's Arctic and Northern Policy Framework*. Government of Canada. <https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587>.

- The Arctic and Northern Policy Framework (ANPF) provides direction for Canada's priorities, activities, and investments in the Arctic to 2030 and beyond. The framework is a successor of the 2009 Northern Strategy and 2010 Statement on Canada's Arctic Foreign Policy. The 10-year plan outlines the government's activities and investments in the Arctic. Key challenges and opportunities specific to Arctic communities, environments, and economy are addressed. The policy framework, which was co-developed with First Nations in Northern Canada, offers a valuable look at the challenges climate change poses for the region. The Framework also includes information on the Canadian Armed Forces presence in the Arctic and the approaches to surveillance in the Arctic. As a recent publication on Canada's arctic policy, this source will provide an up-to-date look at the most pressing issues for the Government of Canada and the communities living in the Arctic.

Parliamentary Information and Research Service. (2020). *Climate change: Its Impact and Policy Implications*. Ottawa: Library of Parliament. <https://lop.parl.ca/staticfiles/PublicWebsite/Home/ResearchPublications/BackgroundPapers/PDF/2019-46-e.pdf>.

- Prepared by the Parliamentary Information and Research Service and part of a series to support parliamentarians at the state of the 43<sup>rd</sup> Parliament, this publication provides in-depth studies of policy issues that feature historical background, current information and references, and anticipate the

emergence of the issues they examine in an objective and impartial form. This particular section of the series focuses on impacts and policy implications as a result of climate change with a particular segment pertaining to climate change impacts on national defence and security (pp.21-27).

The report recognizes climate change as a “non-traditional security threat that transcends borders” and a “threat multiplier: a stressor capable of compounding pre-existing security risks” from a defence and security perspective. It states that “factors that determine the safety and security of Canadians are interconnected, and weaknesses in policy areas - such as those discussed elsewhere in this publication - are intensified under climate stress, and can create direct and indirect challenges for the defence and security of Canada”.

According to this report “between 2008 and 2018, the Canadian Disaster Database recorded more than 195 major disasters in Canada that resulted in billions of dollars in damages, as well as the displacement of hundreds of thousands of Canadians”. With a section specifically discussing “climate change and the Canadian armed forces” (pp.24-26), it is recognized that climate change has been a catalyst of these outcomes, with extreme weather and natural disasters becoming more prevalent and requiring greater CAF response. The report also touches outside of Canada to include discussion of changing dynamics for the US military as a result of changing weather and the need for military readiness in response to climate change. There is also speculation presented that the link between climate change and security may also have implications for the deployment of CAF overseas for humanitarian relief and support.

Parliamentary Information and Research Service. (2013). *Climate Change and Forced Migration: Canada's Role*. Ottawa: Library of Parliament. [https://lop.parl.ca/sites/PublicWebsite/default/en\\_CA/ResearchPublications/201004E](https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/201004E).

- Given that many of the sources listed in this bibliography mention that climate change will increase the number of climate migrants and refugees, this background paper published by the Library of Parliament is important to consider. The paper predicts that the Canadian immigration system will face increased pressure as it receives more applications from climate migrants, even though climate migrants are not recognized under international law or by the Canadian immigration system. One option is to resettle refugees within Canada. Another option outlined in this paper, in the case of large migrations, is for Canada to provide “development assistance” to displaced populations within their own countries. This is relevant to the research topic because it can be inferred that this type of humanitarian mission might implicate the CAF. Furthermore, is a very prominent and timely issue given that migration is an increasingly evident trend in North America, as demonstrated by the Central American ‘migrant caravans’ of 2018 that travelled to Mexico and the southern U.S.

Piché, G. R. (2017). *Blue Economy Implication for Canada's Maritime Security Strategy in the Arctic*. Defence Research and Development Canada. [https://cradpdf.drddc-rddc.gc.ca/PDFS/unc304/p806440\\_A1b.pdf](https://cradpdf.drddc-rddc.gc.ca/PDFS/unc304/p806440_A1b.pdf).

- This paper explores how the “changing nature and the increasing complexity of the maritime security environment calls for a broader approach to security and defence in Canadian waters, and especially in the Arctic... This Scientific Letter discusses how the blue economy can inform Canada's security and defence at home, focusing specifically on the implications of a greater Royal Canadian Navy presence in the Arctic” (p.2). An excellent source for determining the climate change impacts on military operations in a marine Arctic environment.



Public Safety Canada. (2019). *The Canadian Disaster Database*. <https://www.publicsafety.gc.ca/cnt/rsrscs/cndn-dsstr-dtbs/index-en.aspx>.

- The Canadian Disaster Database (CDD) “contains detailed disaster information on more than 1000 natural, technological and conflict events (excluding war) that have happened since 1900 at home or abroad and that have directly affected Canadians”. The CDD is a useful tool as it provides information on where the disaster occurred; the number of injuries, evacuations, and fatalities; and an estimate of the costs. This database is accessible and provides options for a standard or geo-spacial view display and you can export the data. It is useful for tracking the increase of natural disasters that have required response. The above citation links to the CDD webpage where there are further links with instructions and information about using it.

Rompkey, W. and E. M. Cochrane. (Dec 2009). *Controlling Canada’s Arctic Waters: Role of the Canadian Coast Guard*. Standing Senate Committee on Fisheries and Oceans. <https://sencanada.ca/Content/SEN/Committee/402/fish/rep/rep07dec09-e.pdf>.

- This report was the final result of the Committee’s investigation on Canada’s Coast Guard (see below for former publication). The report outlines the agency’s responsibilities, the current and anticipated developments in the Arctic coastline and waters, and also included a number of recommendations for the Government of Canada’s considerations regarding the capabilities that the CCG will need to address the current and anticipated developments. This report and its previous report both outline the plans and activities of CAF in the North alongside the CCG. Like many other recommendations at this time, the report outlines the need to address the increased shipping and commercial activity of the Arctic due to changing coastlines as a result of climate change. This report is useful as a source as it examines the most pressing challenges to the CCG and CAF operations and threats in the Canadian Arctic at the time of its publication.

Rompkey, W. and E. M. Cochrane. (Apr 2009). *Rising to the Arctic Challenge: Report on the Canadian Coast Guard*. Standing Senate Committee on Fisheries and Oceans. <https://sencanada.ca/content/sen/Committee/402/fish/rep/rep02may09-e.pdf>.

- This report examines the Government of Canada’s policies that manage Canada’s oceans. Current and anticipated issues faced by Canada’s Arctic region is outlined, including Arctic sovereignty, economic and shipping developments, partnership and consultation of Indigenous residents, and climate change. The report concludes that because the Arctic is changing so rapidly, Canada’s Northern presence must be more diligent and involved. The report also outlines how the presence of Canadian Rangers and Canada’s Northern Strategy must be enhanced to better protect Canada’s northern coastal regions. This source offers a concise overview of the Canadian defence responsibilities and programs going on at the time of publication. It will be useful when examining how CAF operations and presence has evolved overtime in the Arctic region. The report’s recommendations also illustrate what the Standing Senate Committee considered the most pressing issues faced by Canada’s Arctic at the time.

Sabourin, Maj. R. (2012). *Lighting the 8th Fire - Building Harmony amongst the Canadian Forces and the Inuit in the Arctic* [Master’s thesis]. Canadian Forces College, Toronto, Canada. <https://www.cfc.forces.gc.ca/259/290/298/286/sabourin.pdf>.

- This piece puts forth a four-pronged approach to strengthen the relationship between the Canadian Armed Forces in Inuit people, summarized by the need for an understanding of the current and future vulnerabilities of the Inuit peoples, due to changing arctic environments. The paper argues that this can be done by ensuring that Canadian Armed Forces members have access to avenues with which to exercise their cultural competency, as well as by understanding history from the perspective of its impacts on Indigenous Peoples and Canadian Armed Forces-Indigenous interactions. The article suggests an improvement in Indigenous-Canadian Armed Forces relations, seen through the implementation of policies intended to demonstrate respect for Indigenous spirituality, and through initiatives such as Defence Aboriginal Awareness Group and Aboriginal Liaison Officers. It is valuable in that it addresses the direct intersection between Canadian Armed Forces operations and Inuit consultation, from the perspective of a CF Major.

Sajjan, H. S. (2019). *Department of National Defence and the Canadian Armed Forces 2018-19 Departmental Results Report*. Canadian Armed Force. [https://www.canada.ca/content/dam/dnd-mdn/documents/departmental-results-report/2018-19-drr/english/DRR-2018-19\\_DND\\_English.pdf](https://www.canada.ca/content/dam/dnd-mdn/documents/departmental-results-report/2018-19-drr/english/DRR-2018-19_DND_English.pdf).

- This report, presented by the Minister of National Defence, Harjit S. Sajjan, outlines the progress DND made on Canada's defence policy SSE during the 2018-19 fiscal year. The results highlight achievements of DND and CAF over the year, including their annual spending, the operations completed, and programs that were launched or expanded. This source, much like the Departmental Plan for the following year (outlined below) demonstrate how DND uses their resources and how they implement programs in line with SSE. The results report is important in demonstrating how much of the departmental plan was achieved and to what extent. It may offer insight into the projected achievements of the 2020-21 departmental plan.

Sajjan, H. S. (2020). *Department of National Defence and the Canadian Armed Forces 2020-21 Departmental Plan*. Canadian Armed Force. <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/departmental-plans/departmental-plan-2020-21-index.html>.

- This publication, presented by the Minister of National Defence, Harjit S. Sajjan, lays out the DND and CAF mandates and goals related to six Core Responsibilities: operations, ready forces, defence team, future force design, procurement of capabilities, and sustained bases, IT systems, and infrastructure. The details of these responsibilities are outlined in detail in the department plan, including a more in-depth look at ongoing CAF and DND operations and projects both domestically and internationally. The plan additionally outlines how CAF will undertake the goals set forth in *Strong, Secure, and Engaged*. This source is important in understanding how the Department of Defence engages with Canadian defence policies and the spending and human resources that go into the department and how they are utilized. The source is a current and valuable tool to see how DND interprets and carries out the goals outlined in SSE.

Special Senate Committee on the Arctic. (Feb 27, 2019). *Issue No. 21. Transcript*. Senate of Canada. <https://sencanada.ca/en/Content/SEN/Committee/421/arct/21ev-54570-e>.

- This transcript contains an overview of the policy recommendations and findings of a recent Gordon Foundation meeting, which studied the impact of climate change on socio-economic developing in the Arctic. They discuss recommendations surround infrastructure to provide more opportunity to Northern communities to develop their economic market. This transcript is useful when considering policy changes that aims to support the livelihoods of Indigenous and Northern communities in the

Arctic region. Like many of the proceeding bibliography entrances from the Special Senate Committee on the Arctic, this source speaks more to Indigenous livelihoods and security than it does of military security issues.

Special Senate Committee on the Arctic. (Mar 18, 2019). *Issue No. 23. Transcript*. Senate of Canada. <https://sencanada.ca/en/Content/SEN/Committee/421/arct/22ev-54592-e> (morning meeting) and <https://sencanada.ca/en/Content/SEN/Committee/421/arct/22ev-54594-e> (afternoon meeting).

- This special committee transcript discusses current and ongoing projects taking place in Canada's Arctic region as well as a description of partners and community organizations taking part in the projects. "Inuu'tuti is supporting the Canada's Arctic Policy Framework river basin themes: strong Arctic people in communities, Arctic science and Indigenous knowledge, and protecting the environment and conserving Arctic biodiversity. There are Canada's Arctic Policy Framework objectives as well, such as conserving Arctic biodiversity through science-based decision-making, incorporating Arctic science and traditional knowledge into decision-making, building a sustainable Arctic economy, supporting strong Arctic communities" (Manzo testimony).

Special Senate Committee on the Arctic. (Mar 20, 2019). *Issue No. 23. Transcript*. Senate of Canada. <https://sencanada.ca/en/Content/SEN/Committee/421/arct/23ev-54606-e>.

- This transcript includes research and testimony on the status of health and food security in Arctic communities. It touches on the ongoing initiatives at the time to improve socio-economic security in the region. Additional transcripts can be found via the link above.

Special Senate Committee on the Arctic. (Apr 3, 2019). *Issue No. 24. Transcript*. Senate of Canada. <https://sencanada.ca/en/Content/SEN/Committee/421/arct/24ev-54629-e> (morning meeting).

- This transcript involved in-depth discussion of the health of Indigenous and Northern communities. Particularly the security of their livelihoods and the opportunities for youth living in Arctic regions.

Special Senate Committee on the Arctic. (Apr 3, 2019). *Issue No. 25. Transcript*. Senate of Canada. <https://sencanada.ca/en/Content/SEN/Committee/421/arct/25ev-54641-e>.

- This transcript includes the Special Senate Committee on the Arctic's meeting to discuss changes in the Arctic and its impacts. It includes discussion of funding sources and how funds are used. It also includes "some concrete examples of research that is making a difference in the Arctic. Through working with national and international partners, such as the Arctic Council's Sustainable Development Working Group, CIHR is aiming to improve mental wellness among northern communities." This transcript offers insight into the deliverance of research support for interdisciplinary, circumpolar collaboration for addressing Arctic issues.

Special Senate Committee on the Arctic. (Apr 8, 2019). *Issue No. 26 transcript*. Senate of Canada. <https://sencanada.ca/en/Content/SEN/Committee/421/arct/26ev-54664-e> (morning meeting) and <https://sencanada.ca/en/Content/SEN/Committee/421/arct/26ev-54667-e> (afternoon meeting).

- This transcript of the Special Senate Committee on the Arctic contains the proceedings for the meeting in which the Senate considered the significant and rapid changes to the Arctic and impacts on original

inhabitants. A number of senators from the Canadian Arctic attended and presented the work of the Standing Committee of Parliamentarians of the Arctic Region and Norwegian Arctic policies. The members address challenges and threats to the Arctic, as well as opportunities and economic development. This transcript is valuable for its perspective and cultural view from Arctic inhabitants. One member advocates for the UN Global Impact initiative be adopted by Canada and the Arctic Investment Protocol to be used as an instrument for Arctic development.

Wallin, P. and R. Dallaire. (2011). *Sovereignty & Security in Canada's Arctic: Interim Report*. Standing Senate Committee on National Security and Defence.

<https://sencanada.ca/Content/SEN/Committee/403/defe/rep/rep07mar11-e.pdf>.

- This report focuses on the existing and emerging threats to Canada's Arctic, many of which had already been explored in Arctic security and defence publications around the same time, including Canada's Northern Strategy and Canadian Arctic Foreign Policy. This report examines those threats and then explores Canada's ability to meet them, especially those which were already experiencing rapid change, including Arctic sea ice loss and increasing foreign interest in the Arctic region. They also explore the need for adaption of militarization of the region and ensuring CAF is prepared to respond to anticipated developments with situational awareness. This source offers a good overview of CAF's organizational structure and capabilities, especially in an Arctic context, including details on equipment and program development at the time. The role of the Canadian Rangers in Arctic security is explored and their need for expansion and updating is outlined. This source summarizes what and how Canada needed to improve its understanding of the Arctic and its security, offering insights into the considerations being taken to secure the Arctic during this time and the anticipated changes for future CAF operations.

## **U.S. GOVERNMENT SOURCES:**

Air Force Special Operations Command. (2015). *Strategic Assessment of the Future Operating Environment*.

U.S. Air Force. <https://www.af.mil/Portals/1/images/airpower/AFFOC.pdf>.

- This document addresses the question: How will future U.S. Air Force (USAF) forces deliver responsive and effective global vigilance, global reach, and global power in the anticipated environment of 2035. It assesses the operations of the USAF in the frame of the future environment. Climate change impacts and scarcity of natural resources are identified as being critical influences to the future operations of the USAF. This source is useful when identifying the agendas being made to deal with anticipated changes to the environment from a military standpoint.

Brosig, M, et al. (2019). *Implications of Climate Change for the U.S. Army*. United States Army War College.

[https://climateandsecurity.files.wordpress.com/2019/07/implications-of-climate-change-for-us-army\\_army-war-college\\_2019.pdf](https://climateandsecurity.files.wordpress.com/2019/07/implications-of-climate-change-for-us-army_army-war-college_2019.pdf).

- This report examines both the implications of climate change for the US Army, as well as national security challenges that are worsened by or associated with climate change. Although focusing on the army, it overlaps with other military services as well. At the beginning, this report boldly states that: "Current conversations about climate change and its impacts are often rancorous and politically charged. As an organization that is, by law, non-partisan, the Department of Defense (DoD) is

precariously unprepared for the national security implications of climate change-induced global security challenges.” This report is laid out in an accessible manner, with the summary of analysis at the beginning that highlights each topic with a concise breakdown of “problem” and “recommendation”. This report exposes many of the problems faced by the United States as result of climate change and security including but not limited to: rising seas and changing coastal geography; the Arctic; increased insect-borne diseases; decreased fresh water availability; decreased food security; heightened cases of extreme weather; stress to the power grid and economic disruption. With a list this long, it is clear that the USA needs to be prepared to address these challenges. The report goes on to explain how a lack of organizational accountability in the DoD and the Army; lack of systemic understanding of wide diversity of climate-change related intelligence and; the environmentally oblivious culture of the Army contributes to said lack of preparedness. The second half of the report provides useful and tangible recommendations to improve the situation.

Defense Science Board Task Force. (Oct 2011). *Trends and Implications of Climate Change for National and International Security*. Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. <https://fas.org/irp/agency/dod/dsb/climate.pdf>.

- This report examines the need to adapt, manage, and mitigate the consequences of climate change for U.S. security purposes. “This report begins with an overview of the impacts of climate change over recent decades while recognizing uncertainty about the pace of future changes. It examines the political consequences of climate change as it relates to national and international security, with special attention to the African continent due to the vulnerability of African nations with high potential to intersect with United States national interests. Within this context, the study examined the roles of the Department of Defense and the national security community writ large in responding to effects of climate change in both the United States and in key areas of the globe” (memorandum). A number of recommendations are included which may help determine future policy recommendations for national security and climate change, including: the need for developing a robust climate information system; instituting water security as a core element of DoD strategy; roles of the national security community, including the intelligence community, the Department of State, and the White House; guidance and DoD organization to address the full range of international climate change-related issues and their impact on the evolution of DoD’s missions and combatant command roles, responsibilities, and capacities.

Department of Defense. (Nov 2013). *Arctic Strategy*. United States Government. [https://dod.defense.gov/Portals/1/Documents/pubs/2013\\_Arctic\\_Strategy.pdf](https://dod.defense.gov/Portals/1/Documents/pubs/2013_Arctic_Strategy.pdf).

- The 2013 *Arctic Strategy* outlines the activities needed to secure the Arctic, including resources extraction and trade, supporting safe commercial and scientific operations, and national defence. The report builds on cooperative strategic partnerships to increase opportunities with Arctic partners and enhance regional expertise. This source is a useful tool to assess the U.S. interests in the Arctic, DoD supporting objectives, strategic approach, and the challenges and risks to the strategic approach. This is the primary source to Arctic policy and defense strategies from the Department of Defense, many additional sources of Arctic security in the U.S. builds upon this resource.

Department of Defense. (2014). *2014 Climate Change Adaption Roadmap*. United States Government. [https://www.acq.osd.mil/eie/downloads/CCARprint\\_wForward\\_e.pdf](https://www.acq.osd.mil/eie/downloads/CCARprint_wForward_e.pdf).

- This roadmap report notes that climate change is a national security threat. The report outlines mitigation strategies to reduce adverse impacts of climate change. Included in this report is plans and operations for Arctic projects to ensure the Arctic region remains peaceful, calling for increased capacities in the Arctic. It also discusses the loss of natural infrastructure as a result of thawing permafrost and sea ice in Alaska and the Arctic region. A useful overview of Arctic issues and climate change impacts within the context of a national climate action plan.

Department of Defense. (2019). *Department of Defense Arctic Strategy*. Office of the Under Secretary of Defense for Policy. <https://media.defense.gov/2019/Jun/06/2002141657/-1/-1/1/2019-DOD-ARCTIC-STRATEGY.PDF>.

- The DoD Arctic Strategy includes strategic objectives for the Arctic region and their “strategic approach for protecting U.S. national security interests in the Arctic in an era of strategic competition” (p. 1). This publication outlines three strategies intended the support DoD’s Arctic mission and interest in the Arctic: building Arctic awareness, enhancing Arctic operations, and strengthening the rules-based order in the Arctic. This publication is useful when determining the U.S. National Security Interests in the Arctic and how they are proposing to protect those interests. It also discusses the role of DoD in protecting Alaska and working with communities in the region to “incorporate their views on regional developments into DoD activities” (p. 8).

Department of Defense. (2016). *DoD Directive 4715.21: Climate Change Adaption and Resilience*. Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. <https://dod.defense.gov/Portals/1/Documents/pubs/471521p.pdf>.

- “In accordance with the direction in Executive Order 13653, this issuance establishes policy and assigns responsibilities to provide the DoD with the resources necessary to assess and manage risks associated with the impacts of climate change. This involves deliberate preparation, close cooperation, and coordinated planning by the DoD” (abstract). This is more of a general overview of climate strategy undertaken by DoD—not Arctic-specific.

Department of Defense. (Mar 2011). *DoD Instruction 4715.03: Natural Resources Conservation Program*. Office of the Secretary of Defense. <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/471503p.pdf>.

- This instruction implements policy and assigns responsibility for compliance with Federal requirements as a response to Obama’s Executive Orders on climate. it includes plans for integrated management of natural resources control by DoD, natural resource conservation procedures undertaken by the DoD Conservation Committee and incorporation of climate change considerations in the Integrated Natural Resource Management Plans. It also includes information on Alaska-specific natural resource protection and management as well as the disclaimer that “federally recognized Indian tribes, Alaska native entities, and Native Hawaiian organizations that have a culturally or historical affiliation with the lands encompassed by the installation an opportunity to consult on the development of the INRMP where tribal treaty rights, sacred sites, burial sites, or other right to natural and cultural resources potentially may be affected...” (art.5.3). In addition, it includes information regarding access to lands by Alaskan Natives and other Indigenous communities in art.7.3. Because operations in the Arctic often intersect with Indigenous communities living in the Arctic region, an understanding of Indigenous rights and sovereignty is imperative when considering any policies or programs aimed at the Arctic region in both Canada and the United States.

Department of Defense. (2015). *National Security Implications of Climate-Related Risks and a Changing Climate*. United States Government. <https://dod.defense.gov/Portals/1/Documents/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf>.

- This report identifies “the most serious and likely climate-related security risks for each Combatant Command, the ways in which the Combatant Commands are integrating mitigation of these risks into their planning processes, and a description of the resources required for an effective response” (p. 1). The clear implications of climate related vulnerabilities and how the DoD has proposed to address them will be useful when determining how defence and activities will have to change because of climate change and its impacts both in the U.S. and Canada. This report also includes information on the threat of decreasing Arctic ice cover, type, thickness, and the proposed response to address diminishing Arctic ice.

Department of Defense. (2014). *Quadrennial Defense Review*. United States Government. [https://archive.defense.gov/pubs/2014\\_Quadrennial\\_Defense\\_Review.pdf](https://archive.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf).

- The 2014 Quadrennial Defense Review analyses strategic objectives and potential threats the military and national security. This review notes that climate change will increase the complexity of future missions, including defense support to civil authorities because of increase extreme weather events, infrastructural vulnerabilities to flooding, and limited natural resources. The report also notes that investments into energy and water security may help mitigate these risks. An important document regarding U.S. national security and its response to climate change vulnerabilities and threats.

Department of Defense. (Jan 2019). *Report on Effects of a Changing Climate to the Department of Defense*. Office of the Under Secretary of Defense for Acquisition and Sustainment. <https://media.defense.gov/2019/Jan/29/2002084200/-1/-1/1/CLIMATE-CHANGE-REPORT-2019.PDF>.

- This report “provides an assessment of the significant vulnerabilities from climate-related events in order to identify high risks to mission effectiveness on installations and to operations” (p. 2). Types of climate change threats are clearly outlined and explained from a defense-standpoint. This source will be particularly important for determining the threats of climate change on defence efforts in the U.S. and also Canada. This report also discusses the impact of Arctic-specific issues, including permafrost thawing and increased maritime traffic.

Department of Defense. (May 2011). *Report to Congress on Arctic Operations and the Northwest Passage*. OUSD (Policy). [https://dod.defense.gov/Portals/1/Documents/pubs/Tab\\_A\\_Arctic\\_Report\\_Public.pdf](https://dod.defense.gov/Portals/1/Documents/pubs/Tab_A_Arctic_Report_Public.pdf).

- This report outlines the Arctic operations “addressing strategic national security objectives, needed mission capabilities, an assessment of changing the Unified Command Plan, needed basing infrastructure, and the status of and need for icebreakers” (p. 2). Missions, their objectives, and relevant Arctic capabilities are clearly outlined. A useful source to tracking missions in the American Arctic.

Department of Defense. (Dec 2016). *Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region*. OUSD (Policy). <https://dod.defense.gov/Portals/1/Documents/pubs/2016-Arctic-Strategy-UNCLAS-cleared-for-release.pdf>.

- This report to congress outlines the steps being taken to promote and improve security in the Arctic region. This source references already existing strategies and policies to demonstrate how they are being used as a means to promote DoD's interests in the Arctic, including the *Arctic Region Policy* and the 2013 *National Strategy for the Arctic Region*. This source will be helpful when determining which allies DoD partners with to achieve their objective end-state for the Arctic: "a secure and stable region where U.S. national interests are safeguarded, the U.S. homeland is defended, and nations work cooperatively to address challenges" (p.2). This source also addresses emerging challenges for safeguarding the U.S.'s interest in the Arctic.

Department of Defense. (Jun 2016). *Report to Congress on Strategy to Resourcing the Arctic Strategy*. OUSD (Policy). [https://dod.defense.gov/Portals/1/Documents/pubs/Report\\_to\\_Congress\\_on\\_Resourcing\\_the\\_Arctic\\_Strategy.pdf](https://dod.defense.gov/Portals/1/Documents/pubs/Report_to_Congress_on_Resourcing_the_Arctic_Strategy.pdf).

- This source outlines how and where funding for the DoD Arctic Strategy was precured. The report provides costs for research, military infrastructure, and capabilities used to execute the Arctic Strategy. A useful fiscal report for determining the amount of investments the U.S. is putting into their Arctic Strategy and how it is being allocated.

Department of Defense. (2018). *Summary of the 2018 National Defense Strategy of The United States of America*. United States Government. <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

- This summary reviews the Department of Defense (DoD) strategy and priorities, assessing the threats and challenges of the nation and rebalancing DoD's strategies, capabilities, and forces. This source is useful for determining the main objectives and goals of DoD. The review also includes an overview of their strategic approaches. This document may serve as an excellent starting point for assessing the DoD's agenda and strategies overall.

Executive Office of the President. (Jun 2013). *Climate Action Plan*. White House.

<https://obamawhitehouse.archives.gov/sites/default/files/image/president27sclimateactionplan.pdf>.

- This report outlines three key pillars for climate action by the Obama administration including: cut carbon pollutions in America; prepare the U.S. for the impacts of climate change; and lead international efforts to combat global climate change and prepare for its impacts. The report makes mention of the challenges of changing conditions in the Arctic for the Department of Homeland Security and outlines a couple measures undertaken by the U.S. Military to develop and deploy advanced transportation technologies more in line with mitigating climate change.

Executive Office of the President. (Feb 2017). *National Security Strategy of the United States of American*.

<https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

- This is the most recent National Security Strategy to come from the White House. This strategy published under the Trump Administration, unsurprisingly, does not mention climate change. It is a good source for comparison of National Security Strategies over time. Will be useful to contrast this against the National Security Strategy under the Obama administration, which identified climate change as a top strategic risk to U.S. efforts and citizens.



Executive Order 13547. (Jul 2010). *Stewardship of the Ocean, Our Coasts, and the Great Lakes*. White House. <https://obamawhitehouse.archives.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes>.

- This executive order from the Obama administration adopts recommendations from the Interagency Ocean Policy Task Force and the National Ocean Council. Based on their recommendations, “this order establishes a national policy to ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems and resources, enhance the sustainability of ocean and coastal economies, preserve our maritime heritage, support sustainable uses and access, provide for adaptive management to enhance our understanding of and capacity to respond to climate change and ocean acidification, and coordinate with our national security and foreign policy interests.” (sec.1). This order was replaced by Executive Order 13840 in 2018 (see below).

Executive Order 13653. (Nov 2013). *Preparing the United States for the Impacts of Climate Change*. White House. <https://www.federalregister.gov/documents/2013/11/06/2013-26785/preparing-the-united-states-for-the-impacts-of-climate-change>.

- This executive order was issued by President Barack Obama in response to the rising issue of climate change. It was issued to protect and prepare the U.S. for the impacts of climate change while also undertaking risk management strategies to minimize the risk to the country. The order has since been rescinded by President Trump on March 28, 2017. This policy is important in understanding the efforts being taken at the time to protect and prepare for climate change in the U.S.

Executive Order 13840. (Jun 2018). *Regarding the Ocean Policy to Advocate the Economic, Security, and Environmental Interests of the United States*. White House. <https://www.whitehouse.gov/presidential-actions/executive-order-regarding-ocean-policy-advance-economic-security-environmental-interests-united-states/>.

- This order, made by President Trump, reflects the administration’s industry-centric focus on short-term economic gain, including promoting resource extraction and increasing national security and ocean use by agencies like the Armed Forces (sec.2.b). This order also does not make any note of climate change. This source is a good tool when compared with the Executive Order it replaced, Order 13547. It shows a decline in dedication and protection of the environment and more power to Armed Forces to monitor oceans and lakes in the United States.

House Armed Services. (Oct 2019). *116<sup>th</sup> Congress: Resiliency of Military Installations to Emerging Threats Witness Testimonies*. House Armed Services Subcommittee on Intelligence and Emerging Threats and Capabilities. <https://www.congress.gov/event/116th-congress/house-event/110061?s=5&r=1>.

- This source includes the witness testimonies from the joint hearing on Resiliency of Military Installations to Emerging Threats. The testimonies highlight climate change-related risks and threats in their respective military installations. A recent source that highlights the current problems faced by various military installations in the United States. Especially useful source since little to no information on climate change is being published from the White House currently.

House Intelligence. (2019, June 5). *Open Hearing on National Security Implications of Climate Change* [Video]. YouTube. <https://www.youtube.com/watch?v=bCheD2L-zDY>.

- On Wednesday June 5, 2019, the House Permanent Committee on Intelligence held an open hearing about the national security implications of climate change. During the hearing, the following individuals spoke: Peter Kiemel, Counselor, National Intelligence Council; Jeffrey Ringhausen, Senior Analyst, Office of Naval Intelligence and; Rod Schoonover, Office of Geography and Global Affairs, State Department Bureau of Intelligence and Research. This hearing included the opportunity for questions to these individuals and their testimony in response related to issues of extreme weather, navy operations, the potential of water to be weaponized through terrorism, risk assessment, increased disease instances etc. This link provides access to a recording of the live hearing.

Leggett, J. A. (Feb 2015). *Climate Change Adaption by Federal Agencies: An Analysis of Plans and Issues for Congress*. Congressional Research Service. <https://fas.org/sgp/crs/misc/R43915.pdf>.

- This report notes that the Government Accountability Office has identified climate change as one of the top risks facing the U.S.'s government. This report "reviews current actions (as of January 2015) of selected federal departments and agencies to adapt their own missions, infrastructure, operations, and personnel to projected climate change... It identifies common approaches among agencies, examples of specific actions, and notable barriers the federal government faces" (p.1). This source offers a useful overview of roadmaps and testimonies of DoD and other federal departments' operations to address and adapt to climate change.

Office of the Under Secretary of Defense for Acquisition and Sustainment. (2019). *Report on Effects of a Changing Climate to the Department of Defense*. United States of America: Department of Defense: [https://climateandsecurity.files.wordpress.com/2019/01/sec\\_335\\_ndaa-report\\_effects\\_of\\_a\\_changing\\_climate\\_to\\_dod.pdf](https://climateandsecurity.files.wordpress.com/2019/01/sec_335_ndaa-report_effects_of_a_changing_climate_to_dod.pdf).

- In explicit contrast to the Trump administration's position on climate change, the Pentagon released this publication that outlines how climate change poses a potential threat to military infrastructure, specifically bases, in the United States. This report opens by stating that: "The effects of a changing climate are a national security issue with potential impacts to Department of Defense missions, operational plans, and installations". It recognizes that given the National Defense Strategy of 2018 that included provisions to build a more lethal force; strengthen alliances and attract new partners; and reform the Department's processes, DoD must be able to adapt their operations in line with new threats and conditions as a result of climate change. It discusses the threat to both installations and operations and describes the necessary action required to counter-act these threats through a high-level assessment. Tables and charts assist in quickly accessing information and visualizing the impacts to installations, their location and the type of natural threat. This is relevant information to CAF operations and personnel located in southern U.S. bases such as Tyndall Air Force base, or bases that are part of NORAD operations such as the Peterson Air Force Base. One interesting thing to note is that mentions of military bases in Puerto Rico are absent from this publication, despite the impacts of natural disasters on Puerto Rico and the significant military presence on the island, which is proving to be a larger trend in American publications. This is relevant to note in terms of the research topic because Puerto Rico has recently suffered from hurricanes and other severe weather that has led to larger migrations to mainland U.S. and the type of damage discussed in other sources on climate change.

Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. (2018). *Climate-Related Risk to DoD Infrastructure Initial Vulnerability Assessment Survey (SLVAS) Report*. United States of America:

Department of Defense. <https://climateandsecurity.files.wordpress.com/2018/01/tab-b-sivas-report-1-24-2018.pdf>.

- This report from the Department of Defense (DoD), examines security-implications of climate-related risks, with a particular focus on vulnerability adaptation strategies for military infrastructure. The report details the findings of a survey that was used to identify DoD installations with vulnerabilities as a result of uncertainties such as: flooding due to storm surge; flooding due to non-storm surge events; extreme temperatures; wind; drought; and wildfire. From this information, they were able to map sites that indicated effects from these climate-related impacts. As well, the report details why this topic is deserving of attention and provides concluding observations. This report is useful in the context of the USA, but also provides an example for Canada, as Canada has not completed its own study of this nature. This report ultimately found that 50% of military infrastructure is at risk of climate-related impacts.

Stein, B, et al. (2019). *Climate Adaptation for DoD Natural Resource Managers: A Guide to Incorporating Climate Considerations into Integrated Natural Resource Management Plans*. Washington: National Wildlife Federation.

- This guide was released to support natural resource managers at DoD with climate-change adaptation. The plan provides details on DoD's Integrated Natural Resource Management Plan (INRMP). Part one highlights climate risks to natural resources and the military mission; adaptation principles and practices; understanding climate science; incorporating climate considerations into INRMPs and; exploring adaptation for INRMP program elements. Part two uses this knowledge to provide a step-by-step process for INRMP adaptation planning that include specific processes and guidelines.

United States Coast Guard. (Apr 2019). *Arctic Strategic Outlook*. United States Government. [https://www.uscg.mil/Portals/0/Images/arctic/Arctic\\_Strategic\\_Outlook\\_APR\\_2019.pdf](https://www.uscg.mil/Portals/0/Images/arctic/Arctic_Strategic_Outlook_APR_2019.pdf).

- "This Arctic Strategic Outlook reaffirms our commitment to American leadership in the region through partnership, unity of effort, and continuous innovation. This document establishes three lines of effort crucial to achieving long-term success: (1) Enhance capability to operate effectively in a dynamic Arctic domain, (2) Strengthen the rules-based order, and (3) Innovate and adapt to promote resilience and prosperity" (p.2). The report also includes information on a changing Arctic climate and resilience/security for Arctic communities.

U.S. Army Corp of Engineers. (2013). *High-level Climate Change Vulnerability Assessment*. Engineer Research Development Center. <https://www.asaie.army.mil/Public/ES/doc/ArmyHigh-LevelClimateChangeVulnerabilityAssessment2013final.pdf>.

- This report was compiled to assess potential impacts of climate change on DoD missions and recommend adaption to address potential impacts. Section 2.7.2 addresses Alaska's climate outlooks specifically, presenting "climate projections that relate to potential vulnerabilities for Army operations, training facilities, and natural resources on installations in the region." Useful source for considerations on climate change impacts on military operations specifically.

U.S. Global Change Research Program. (2014). *Alaska: Regional Highlights from the Third National Climate Assessment, Climate Change Impacts in the United States, 2014*. GlobalChange.gov. [https://www.globalchange.gov/sites/globalchange/files/Regional\\_AK\\_V2.pdf](https://www.globalchange.gov/sites/globalchange/files/Regional_AK_V2.pdf).

- “The National Climate Assessment summarizes the impacts of climate change on the United States, now and in the future. A team of more than 300 experts guided by a 60-member Federal Advisory Committee produced the report, which was extensively reviewed by the public and experts, including federal agencies and a panel of the National Academy of Sciences” (abstract). The regional highlights from Alaska will be of particular interest to the question of military efforts in the Arctic region for the United States.

U.S. Global Change Research Program. (2014). *National Climate Assessment*. Washington: Federal Emergency Management Agency, U.S. Department of Homeland Security. <https://nca2014.globalchange.gov/>.

- The National Climate Assessment “summarizes the impacts of climate change on the United States, now and in the future” through the input of more than 300 experts and a 60-member Federal Advisory Committee. The report is highly interactive, allowing readers to explore by sector or region. It is notable that one of the sectors included is not defense. However, this report is still useful as it examines the impacts of climate change on other sectors and the United States more broadly, as well as response strategies. It is notable that the most recent assessment is from 2014, prior to the Trump administration taking office.

U.S. Navy Task Force on Climate Change (Feb 2014). *Arctic Roadmap 2014-2030*. U.S. Navy. <https://info.publicintelligence.net/USNavy-ArcticRoadmap.pdf>.

- This roadmap, an update of the 2009 Navy Arctic Roadmap, “provides guidance necessary to prepare the Navy to respond effectively to future Arctic Region contingencies, delineates the Navy’s leadership role, and articulates the Navy’s support to achieve national priorities in the Region. Navy functions in the Arctic Region are no different from those in other maritime regions; however, the Arctic Region environment makes the execution of many of these functions much more challenging” (abstract). It supports the objective in the 2014 National Strategy and demonstrates the strategic objectives of the U.S. Navy specifically.

White House. (Feb 2015). *National Security Strategy*. United States Government.

[https://obamawhitehouse.archives.gov/sites/default/files/docs/2015\\_national\\_security\\_strategy\\_2.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/2015_national_security_strategy_2.pdf).

- The National Strategy from the Obama administration offers a general overview of American defence strategies and agendas. The strategy also includes information on the threat of climate change to national security and strategies to minimize its impacts. Additionally, it briefly mentions U.S. Arctic interests and the need to protect the environment, manage resources, and support northern Indigenous communities.

White House. (May 2013). *National Strategy for the Arctic Region*. United States Government.

[https://obamawhitehouse.archives.gov/sites/default/files/docs/nat\\_arctic\\_strategy.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/nat_arctic_strategy.pdf).

- The National Strategy, published during the Obama Administration, outlines the United States Government’s strategic priorities and plans for the Arctic region. The Strategy’s three lines of effort are: advancement of security issues; pursue responsible Arctic region stewardship to preserve and protect the Northern environment and its resources; and strengthen international cooperation, including the Arctic Council, to advance collective interests of Arctic prosperity. Also outlined in the

Strategy is the principles that guide its approach. The report was the first American articulation of strategic priorities of the United States in relation to the Arctic.

White House. (May 2015). *Findings from Select Federal Reports: The National Security Implications of a Changing Climate*. United States Government.

[https://obamawhitehouse.archives.gov/sites/default/files/docs/National\\_Security\\_Implications\\_of\\_Changing\\_Climate\\_Final\\_051915.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/National_Security_Implications_of_Changing_Climate_Final_051915.pdf).

- This document summarizes the nature of threats posed by climate change and how the government plans on addressing them. Some recommendations include: strengthening coastal military installations that are vulnerable to flooding; preparing other infrastructures for climate change impacts; advancing U.S. security interests and ability to respond to climate change in the Arctic and beyond; and creating effective military response to climate change threats. A useful source when determining the projects that were undertaken to protect the military from climate disasters.

## **OTHER SOURCES:**

Arctic Council. (May 2017). *Agreement Enhancing International Arctic Science Cooperation*.

<https://oaarchive.arctic-council.org/handle/11374/1916>.

- The purpose of this Agreement is to “contribute to and build upon existing cooperation and make efforts to develop and expand international Arctic scientific cooperation” (preamble). A valuable resource when considering policies surround projects and programs in the arctic, particularly climate change mitigation strategies and Arctic sea ice experiments. This is the most recent treaty to come from the Arctic Council.

Arctic Council. (2011). *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (SAR or Arctic Search and Rescue Agreement)*. <https://www.ifrc.org/docs/idrl/N813EN.pdf>.

- “SAR is an international agreement on search and rescue cooperation in the Arctic, signed by all the 8 Arctic States (Canada, Denmark, Finland, Iceland, Norway, Sweden, Russia and the U.S)... SAR is the first ever legally binding document elaborated under the auspices of the Arctic Council and the first truly pan-Arctic legally binding document...” (UN, Arctic Portal). This is a useful source to understand partnerships of Arctic states and the current governance frameworks that already exist between them. It could inform the recommendations of partnerships of Arctic states in the future, especially those aimed at protective the environment from negative climate change impacts.

Arctic Council. (2011). *Agreement on Cooperation on Marine Oil Pollution Preparedness in the Arctic*.

[https://oaarchive.arctic-council.org/bitstream/handle/11374/529/EDOCS-2067-v1-ACMMSE08\\_KIRUNA\\_2013\\_agreement\\_on\\_oil\\_pollution\\_preparedness\\_and\\_response\\_\\_in\\_the\\_arctic\\_formatted.PDF?sequence=5&isAllowed=y](https://oaarchive.arctic-council.org/bitstream/handle/11374/529/EDOCS-2067-v1-ACMMSE08_KIRUNA_2013_agreement_on_oil_pollution_preparedness_and_response__in_the_arctic_formatted.PDF?sequence=5&isAllowed=y).

- This pan-Arctic agreement (signed by all 8 Arctic States) has “the objective to strengthen cooperation, coordination and mutual assistance among the Parties on oil pollution preparedness and response in the Arctic in order to protect the marine environment from pollution by oil” (Art. 1). “Each Party shall maintain a national system for responding promptly and effectively to oil pollution incidents. This

system shall take into account particular activities and locales most likely to give rise to or suffer an oil pollution incident and anticipated risks to areas of special ecological significance, and shall include at a minimum a national contingency plan or plans for preparedness and response to oil pollution incidents. Such contingency plan or plans shall include the organizational relationship of the various bodies involved, whether public or private, taking into account guidelines developed pursuant to this Agreement and other relevant international agreements” (Art. 4.1). Another useful source when considering the partnerships of Arctic states and the current governance frameworks already in place.

Arctic Council. (2013). *Summary for policy-makers: Arctic Resilience Interim Report 2013*. <https://oaarchive.arctic-council.org/handle/11374/1629>.

- The Arctic Resilience Report (ARR) is an Arctic Council project that analyses the resilience of societies and ecosystems in the Arctic. The ARR aims to: identify the potential for shocks and large shifts in ecosystem services that affect human well-being in the Arctic; analyse how different drivers of change interact in ways that affect the ability of ecosystems and human populations to withstand shocks, adapt or transform; and evaluate strategies for adaptation and transformation in the face of rapid change. These key messages and findings are important for consideration when adapting Arctic policies, especially in regard to climate change. Socio-ecological systems and their transformations will remain increasingly important for projects and programs operating in the Arctic.

Arctic Council Sustainable Development Working Group. (Mar 2019). *Good Practices for Environmental Impact Assessment and Meaningful Engagement in the Arctic*. Arctic Economic Council. [https://arcticeconomiccouncil.com/wp-content/uploads/2020/05/arctic-eia\\_final-report\\_may-2019.pdf](https://arcticeconomiccouncil.com/wp-content/uploads/2020/05/arctic-eia_final-report_may-2019.pdf).

- This publication from the Arctic Economic Council aims to improve application of environmental impact assessments (EIA) in the Arctic region. The publication includes examples of existing good practices from across the Arctic, key areas where improvements are needed, and a number of recommendations for Arctic states’ governments to enhance their application of EIA. The five key recommendations included are: seek true dialogue to meaningful engage; utilize Indigenous knowledge and local knowledge; build internal capacity and provide resources to meaningful engage in EIA; allow EIA to influence project design and decision-making process; and strengthen circumpolar cooperation on transboundary EIA. This publication is useful when considering the policy recommendations and governance options for Arctic states. EIA may fundamentally change what policies can and would be available, so an understanding of the process is imperative to provide the most relevant and impactful policy recommendations.

Arctic Monitoring and Assessment Programme. (Apr 2015). *Arctic Climate Issues 2015: Summary for Policymakers*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/714>.

- This Arctic Monitoring and Assessment Programme (AMAP) report presents policy-relevant findings from the AMAP 2015 assessment of short-lived climate forcers (methane, black carbon, and ozone). The report explores how each of these elements affect the Arctic region. This may be a particularly relevant source when considering the changes Canada and/or the U.S. may need to make in their military operations and programs in the Arctic as a result climate changes. Understanding how human activity (including military activity) in the region may affect what programs or policies will be recommended.

Arctic Monitoring and Assessment Programme. (May 2019). *Arctic Ocean Acidification Assessment: 2018 Summary for Policymakers*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/2351>.

- The AMAP assessment finds that the Arctic ocean is acidifying, which “poses a threat to marine organisms, ecosystems, and human societies that depend on them” (p. 3). The socio-economic effects of ocean acidification outlined in the report may be particularly relevant to any policy that addresses climate change’s impact on societies in the Arctic. The AMAP assessment also includes a number of recommendations for policymakers to address the issues and build economic and social resilience for the communities impacted, speaking to the security of Arctic livelihoods.

Arctic Monitoring and Assessment Programme. (Apr 2015). *Arctic Pollution Issues 2015: Summary for Policymakers*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/717>.

- This AMAP report explores trends in terms of pollutants in the Arctic, threats to Arctic livelihoods, and recommendations for addressing the issues. The main policy lessons outlined in the report include the need for more timely controls on chemicals of emerging concern; risk communication to help reduce exposure; and Fukushima as a reminder of the risks of long-range radioactivity. The need for Arctic states to show leadership on international pollution control is emphasized. An important call to action to consider when examining or devising Canadian Arctic policies.

Arctic Monitoring and Assessment Programme. (May 2019). *Biological Effects of Contaminants on Arctic Wildlife and Fish: Summary for Policy-Makers*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/2352>.

- The AMAP published this 2019 assessment of the Arctic environmental pollutants, which found chemical pollutants to be in elevated levels. The report outlines how the pollutants that have been found in the Arctic “have also been associated with effects on animal and human health, therefore, wildlife and fish species endemic to the Arctic and the indigenous communities that rely on them as part of a traditional diet, remain vulnerable to the potential detrimental effects associated with these chemicals” (abstract). The report is a valuable source to consult when examining the sustainability and security of the Arctic environment and its inhabitants.

Arctic Monitoring and Assessment Programme. (May 2017). *Snow, Water, Ice and Permafrost in the Arctic (SWIPA): Summary for Policymakers*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/1931>.

- This Summary for Policymakers presents key findings and implications of the second SWIPA assessment, conducted from 2010 to 2016 and published in 2017. The seven key findings on this publication include: the Arctic’s climate is shifting to a new state; climate change in the Arctic has continued at a rapid pace; changes will continue through at least mid-century, due to warming already locked into the climate system; substantial cuts in global greenhouse gas emissions now can stabilize impacts after mid-century; adaptation policies can reduce vulnerabilities; and effective mitigation and adaptation policies require a solid understanding of Arctic climate change. This SWIPA report is an invaluable source for understanding the effects of climate change on the Arctic region specifically.

Army Environmental Policy Institute. (Dec 2011). *Army Water Security Strategy*. United States Army. [https://www.sdu.dk/-/media/files/om\\_sdu/institutter/iti/forskning/nato+arw/literature/armywaterstrategy.pdf](https://www.sdu.dk/-/media/files/om_sdu/institutter/iti/forskning/nato+arw/literature/armywaterstrategy.pdf).

- This strategy provides a complete definition for Army water security, conducts the first comprehensive study of water security management in the Army, and identifies the key issues on which Army leadership can focus to ensure that the Army has enough water of suitable quality for the foreseeable future. The document provides Army goals, conditions, and emergency response plans for protecting and preserving water. It also discusses the impact of climate change on water security. It is a more general overview of water security issues from a military lens and does not delve into Arctic-specific water security issues.

CNA Military Advisory Board. (2014). *National Security and the Accelerating Risks of Climate Change*. Alexandria: CNA Corporation. [https://www.cna.org/cna\\_files/pdf/MAB\\_5-8-14.pdf](https://www.cna.org/cna_files/pdf/MAB_5-8-14.pdf).

- This report from the CNA Military Advisory Board claims that “national security risks of projected climate change are as serious as any challenges we have faced”. This report follows a 2007 report with acknowledgement that their predictions in the first report have been validated and that the risks are advancing noticeable faster than what was originally anticipated. This report is highly accessible and highlights major findings effectively across various categories. It also provides recommendations and voices of experience, as well as examines the international context of climate change and security.

Connolly, G. E. (Oct 2017). *NATO and Security in the Arctic*. NATO Parliamentary Assembly, Sub-Committee on Transatlantic Relations. <https://www.nato-pa.int/download-file?filename=sites/default/files/2017-11/2017%20-%20172%20PCTR%2017%20E%20rev.1%20fin%20-%20NATO%20AND%20SECURITY%20IN%20THE%20ARCTIC.pdf>

- This report from the NATO Parliamentary Assembly explores the role of NATO in securing the Arctic. The security impact of climate change on the Arctic is discussed, saying “Non-Arctic states are taking a greater interest in the region, attracted by economic opportunities (shipping, fishing, and energy). This creates new geopolitical challenges that must be managed carefully. These challenges include both traditional security concerns linked to the deployment of military assets in the Arctic, as well as those created by the prospective exploitation of the largest geographical area of untapped hydrocarbon reserves remaining on Earth. Associated risks include search and rescue (SAR) operations in a largely uncharted area, and environmental hazards such as oil spills, and the human security of Indigenous populations whose traditional habitat is being infringed upon” (p.5). This report will be useful when considering how Canadian and American military operations may have to adapt to address these issues and adapt to a new geopolitical environment.

Conservation of Arctic Flora and Fauna. (May 2019). *Actions for Arctic Biodiversity 2013-2021: Implementing the Recommendations of the Arctic Biodiversity Assessment*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/2359>.

- This report is an evaluation of the Action Plan, which provides clarity on issues affecting Arctic biodiversity, and provides recommendations for how the Arctic Council and their states should respond. It could be of value when considering changes to be made to military operations in the Arctic as some of the recommendations discuss infrastructure and development in Arctic regions including “Reduce stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes” (p. 6).

Conservation of Arctic Flora and Fauna. (2013). *Arctic Biodiversity Assessment 2013: Report for Policy Makers*. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/224>



- “The ABA consists of four components: Arctic Biodiversity Trends 2010 – Selected Indicators of Change, which provided a preliminary snapshot of status and trends of Arctic biodiversity; the Arctic Biodiversity Assessment, Status and Trends in Arctic Biodiversity, a comprehensive, peer-reviewed scientific assessment of Arctic biodiversity, and scientific synthesis; a traditional ecological knowledge (TEK) compendium; and this Report for Policy Makers aimed at making the science accessible for decision-makers and identifying actions to address key findings” (p.3). A number of recommendations are included in the report which is a useful consultation tool when considering policy changes that affect the Arctic region.

EKOS Research Associates Inc. (2011). Rethinking the Top of the World: Arctic Security Public Opinion Survey, Final Report. Submitted to: *The Walter and Duncan Gordon Foundation & The Canada Centre for Global Security Studies at the Munk School of Global Affairs*. Ottawa, Canada.

<http://www.ekospolitics.com/articles/2011-01-25ArcticSecurityReport.pdf>.

- This survey provides information on public perception of how the issue of Arctic security is understood, based on 9,000 randomly sampled interviews conducted in nine separate populations, including comparisons of representative samples from the North of 60 residents, and the rest of Canada. (See specifically: 3.3, Importance of the Military in the Arctic). This section is important so as to contextualize public opinion towards a military-focused Arctic policy, and the diversion of military resources to the Arctic.

Femia, F, & Werrell, C. (2019). *UPDATE: Chronology of U.S. Military Statements and Actions on Climate Change and Security: Jan 2017 - August 2019*. The Centre for Climate and Security.

<https://climateandsecurity.org/2019/08/22/update-chronology-of-u-s-military-statements-and-actions-on-climate-change-and-security-jan-2017-august-2019/>.

- This page, through the Center for Climate and Security, is a fantastic resource as it chronologically lists and provides links to “US Military Statements and Actions on Climate Change and Security between January 2017 and August 2019”. This comprehensive list makes it easy to visualize the timeline of various progressions pertaining to climate change and security in the US, as well as provides easy access to statements and relevant publications, all in one place. The preamble states that between these two years, at least 32 senior officials at the U.S. DoD have “publicly raised concerns about, and recommended actions to address, the security implications of climate change, both due to its effect on military infrastructure, readiness and operations, and its broader geostrategic implications for the United States”. Some of the statements and publications have their own entry in this annotated bibliography, but this source remains a good starting point for understanding US military progress within the climate-military nexus. This source has collected direct quotations from testimonies to list them here so that they are easy to find without sifting through entire transcripts. This helps connect the reader with relevant primary sources.

International Maritime Organization. (2015). *International Code for Ships Operating in Polar Waters (Polar Code)*. <http://www.imo.org/en/MediaCentre/HotTopics/polar/Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED.pdf>

- The Polar Code is “intended to cover the full range of shipping-related matters relevant to navigation in waters surrounding the two poles – ship design, construction and equipment; operational and training concerns; search and rescue; and, equally important, the protection of the unique environment and

eco-systems of the polar regions. The Polar Code includes mandatory measures covering safety part (part I-A) and pollution prevention (part II-A) and recommendatory provisions for both (parts I-B and II-B)... Trends and forecasts indicate that polar shipping will grow in volume and diversify in nature over the coming years and these challenges need to be met without compromising either safety of life at sea or the sustainability of the polar environments” (IMO). Additionally, IMO and Transport Canada have signed a Memorandum of Understanding to deliver regional capacity-building training and research for safety in the Arctic region. This source is useful when understanding and considering the changing Arctic geopolitics and increased shipping activity in the region.

Inuit Circumpolar Council. (2009). *A circumpolar Inuit declaration on sovereignty in the Arctic*. [www.itk.ca/circumpolar-inuit-declaration-arctic-sovereignty](http://www.itk.ca/circumpolar-inuit-declaration-arctic-sovereignty).

- This Declaration acknowledges the increased involvement and interest in the Arctic region from both Arctic and non-Arctic states, and asserts the need for inclusion of Arctic Indigenous peoples’ rights and responsibilities to self-determination in discussions on sovereignty (See specifically: Article 3.5). This ICC Declaration asserts Inuit consent, expertise, and perspectives as critical to progress on international issues involving the Arctic, including that of militarization.

International Military Council on Climate and Security. (2020) *The World Climate and Security Report 2020*. Washington, DC: The Center for Climate and Security. [https://climateandsecurity.files.wordpress.com/2020/02/world-climate-security-report-2020\\_2\\_13.pdf](https://climateandsecurity.files.wordpress.com/2020/02/world-climate-security-report-2020_2_13.pdf) .

- This is a valuable publication regarding the effects of climate change on world security. There are very detailed descriptions of the security implications of climate change for different regions broken down into the respective countries within the different areas of U.S. command. There is information about the primary concerns for each country and region in terms of the types of natural effects that they may face, in addition to analyses of the security institutions and frameworks of different countries and how they factor into the respective countries’ responses to the effects of climate change. Some of the silences or gaps of information regarding security institutions south of the U.S. are addressed in this text, in that there is specific mention of countries organizations, and effects that are not considered in other sources, for instance. Most American and Canadian government sources do not mention Mexico, for example, despite its geographical proximity and importance to Canadian and U.S. politics, whereas this source does. Furthermore, this is perhaps the most relevant source to the topic of climate change and security in Central America, as it analyzes the countries’ responses in this regard and claims that in countries covered in the USSOUTHCOM region, climate change does not form a part of defense planning.

Landriault, M., & Savard, J.F. (2020). *Engagement with Inuit People by the Canadian Military via social media*. North American Arctic Defence and Security Network. [https://www.naadsn.ca/wp-content/uploads/2020/04/Policy-Brief-Landriault-and-Savard\\_March-9.pdf](https://www.naadsn.ca/wp-content/uploads/2020/04/Policy-Brief-Landriault-and-Savard_March-9.pdf).

- This policy brief summarizes evidence about mentions of Inuit issues and peoples on the different Twitter handles held by the Department of National Defence and the Canadian Armed Forces. This work assists in understanding the degree to which Inuit issues and people are represented and engaged with by the Canadian military via social media, and how this representation and engagement could be maximized in the future.

Lazzam, D. (Jun 12, 2019). With fires and floods on the rise, should Canada take a more active stance on climate security? *NATO Association of Canada*. <http://natoassociation.ca/with-fires-and-floods-on-the-rise-should-canada-take-a-more-active-stance-on-climate-security/>.

- This article, published by the NATO Association of Canada (NAOC), argues that while Canadian governmental policy has worked to address climate change, the defence posture of Canada and NATO on the other hand has remained fairly reactive in regard to acknowledging the security implications of climate change. It argues that Canada, along with much of the global defence community, has exercised patterns of addressing climate threats as they arise, rather than proactively. Current reactive defence policies are not able to prevent the rise of environmental security threats, but rather just treat their symptoms. Canada's Department of National Defence needs to explore options to more actively engage in the fight against climate change. It begs the question of how a military body can contribute positively to environmental concerns without any combat involved. This short piece concludes by suggesting that CAF defence forces could begin to contribute by setting climate mitigation goals for their individual operations and infrastructures. On a multilateral scale, the author suggests Canada could make use of alliances such as NATO to further their commitment to environmental sustainability. Ultimately it argues that as a leader for climate change prevention, Canada could do more to engage with international environmental security.

Maritime Transportation Working Group. (2019). *The State of Maritime Transportation in the Arctic*. Arctic Economic Council. <https://arcticeconomiccouncil.com/wp-content/uploads/2019/05/AEC-Maritime-Transportation-WG-report.pdf>.

- As new shipping routes open up in the Arctic region, shipping activity has, and continues to, increase. This document provides information on vessel movements and transport volumes. This document is part of the Arctic Council's push for a new regulatory framework for Arctic shipping. Several issues at international, regional and national levels are addressed. The Arctic Economic Council's goal is to "continue improving its cooperation with the IMO, World Ocean Council, International Chamber of Shipping (ICS), Oil Companies International Marine Forum (OCIMF), Arctic Regional Hydrographic Commission (ARHC), International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and other relevant actors to further improve the shipping industry's safety and environmental performance in Arctic waters." This source is valuable when considering increased activity in Arctic waters from a number of actors. Any recommendations or policies imposed should keep in mind the geopolitical climate in the Arctic and the increased protectionism that is taking place, as outlined in this document.

Organization of American States: Joint Summit Working Group. *The Joint Summit Working Group: Cooperating for the Americas- 2018*. Summits of the Americas Secretariat, 2018. [http://www.summit-americas.org/jswg/2018\\_en.pdf](http://www.summit-americas.org/jswg/2018_en.pdf).

- The Summit of the Americas is held every three years. This source is a summary of some of the priorities and policies of the countries in the Americas, including some of the priorities and issues of security and environmental protection, including climate change, migration, and drug trafficking. Given the apparent silence from some of the defence organizations that Canada belongs to on climate change, it is important to consider what other summits and organizations Canada participates in to identify some of its international obligations, objectives, and cooperation on security, humanitarian, and environmental issues. The Organization of American States is a particularly relevant one to

consider as it entails cooperation and dialogue between Canada and other countries on countries relevant to this research in southern North America.

Pachauri, R. K., Gomez-Echeverri, L., & Riahi, K. (2014). *Synthesis report: summary for policy makers*. IPCC. [http://pure.iiasa.ac.at/id/eprint/11055/1/ipcc\\_wg3\\_ar5\\_summary-for-policymakers-1.pdf](http://pure.iiasa.ac.at/id/eprint/11055/1/ipcc_wg3_ar5_summary-for-policymakers-1.pdf).

- The IPCC's *Summary for Policymakers* follows the structure of the *Climate Change 2014 Synthesis Report* but highlights conclusions and information that is particularly relevant for policy makers. This report will be especially useful when considering options for mitigation of climate change in Canada's Arctic and development of infrastructure and community livelihoods in the region.

Pachauri, R. K., Allen, M. R., Barros, V. R., Broome, J., Cramer, W., Christ, R., ... & Dubash, N. K. (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the fifth assessment report of the Intergovernmental Panel on Climate Change*. Intergovernmental Panel on Climate Change [IPCC]. [https://www.ipcc.ch/site/assets/uploads/2018/05/SYR\\_AR5\\_FINAL\\_full\\_wcover.pdf](https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf).

- This IPCC report contains extensive information on various aspects related to climate change. It includes "evaluation and assessment of uncertainties and risks; integrated costing and economic analysis; regional aspects; changes, impacts and responses related to water and earth systems, the carbon cycle...; as well as treatment and of mitigation and adaption options within the framework of sustainable development" (p.vii). Particularly relevant to this project is the regional aspects of climate change (many references to Arctic, sea ice, and Northern communities), changes and impacts of water systems, and issues of human and societal security concerns. This report is the most recent of the IPCC reports on climate change.

Smith, Joel B. "Climate Effects on U.S. International Interests." In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*, edited by D.R. Reidmiller, C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart. U.S. Global Change Research Program: Washington, DC: 604-637. [https://nca2018.globalchange.gov/downloads/NCA4\\_Ch16\\_International\\_Full.pdf](https://nca2018.globalchange.gov/downloads/NCA4_Ch16_International_Full.pdf).

- This publication, promoted by the U.S. Environmental Protection Agency, details how climate change can affect the U.S. government's foreign interests and policy. The most relevant section to the research topic is titled "Key Message 3: Climate and National Security," as it outlines how the effects of climate change (specifically severe weather and natural disasters) are affecting military infrastructure and increasing resource conflict abroad. The chapter also describes some of the "transboundary resources," principally water, across the Canadian and Mexican borders as well. This source is relevant to the research topic because Operation GLOBE, Operation FOUNDATION, and some NORAD activities involve CAF personnel in some way using U.S. military infrastructure in the southern U.S. and Caribbean Basin. Therefore, the effects of climate change on this infrastructure could affect CAF operations and personnel.

The National Security, Military, and Intelligence Panel on Climate Change (NSMIP). (2020). *A Security Threat Assessment of Global Climate Change: How Likely Warming Scenarios Indicate a Catastrophic Security Future*. Washington, DC: The Center for Climate and Security. <https://climateandsecurity.files.wordpress.com/2020/03/a-security-threat-assessment-of-climate-change.pdf>.

- This publication from an U.S. think-tank analyzes the potential risks and implications of climate change for security. The document is divided into different sections according to the different areas of U.S.

command. Each section (for each respective region) provides a threat assessment for “risks to security environment,” “risks to security infrastructure,” and “risks to security institutions.” The authors also present different scenarios and “threat assessments,” like how a global increase in temperature of one to two degrees would be “medium-high” risk level, while two to four degrees would present a “high-catastrophic” risk level for NORTHCOM regions, for example. It is an encompassing summary that analyzes local factors, such as how crop growth on the Mexican borders affects its militarized reception of migrants. The authors of the publication outline the reduction of greenhouse gases and energy emissions as a primary (proposed) response. This publication is relevant to the research topic not just because it addresses issues in the assigned areas of research, but also because many CAF operations are carried out in partnership with the U.S. and Canada is a close security partner of the U.S., so it is important to analyze how the U.S. might be implicated by certain climate change effects internationally because, consequently, its response could implicate the CAF.

United Nations Economic Commission for Europe. (1991). *Convention on Environmental Impact Assessment in a Transboundary Context (Espoo convention)*. [https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\\_no=XXVII-4&chapter=27&lang=en](https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-4&chapter=27&lang=en).

- This treaty is an important source when considering climate change related natural disasters and any mitigation projects states may undertake. “Governments have realized that to avert this danger they must notify and consult each other on all major projects under consideration that might have adverse environmental impact across borders. The Espoo Convention is a key step to bringing together all stakeholders to prevent environmental damage before it occurs” (UN, Arctic Portal). Since US and Canadian military are increasingly becoming involved in climate projects, mitigation projects, community support for those affected by climate change, etc. this treaty is an important source to consult if considering policy recommendations around environmental, climate change projects in the Arctic region. Both Canada and the U.S. are party to this treaty.

United Nations General Assembly. (10 Dec 1982). *Convention on the Law of the Sea*. [https://www.un.org/depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf).

- “The United Nations Convention on Law of the Sea is an international agreement that outlines a comprehensive regime of laws clarifying rights and responsibilities of States in regards of the use of seas and oceans, and their resources. The treaty therefore regulates issues as navigational rights, territorial sea limits, economic jurisdiction, legal status of resources on the seabed beyond the limits of national jurisdiction, passage of ships through narrow straits, conservation and management of living marine resources, protection of the marine environment, a marine research regime and, a more unique feature, a binding procedure for settlement of disputes between States” (UN, Arctic Portal). This treaty is useful in determining partnerships of states and defining which countries participate in the recognition of treaty itself. Because much of the Arctic region consists of large ocean, this treaty is especially useful in settling any disputes between nations and determining the rights of Arctic nations as shipping channels become more open and widely used by other states. The treaty could be useful when considering policy changes in the Arctic as it may determine Canada’s own rights within their Arctic waters. Both Canada and the U.S. are party to this treaty.

United Nations. (2019). Climate change recognized as ‘threat multiplier’, UN Security Council debates its impact on peace. *UN News*. <https://news.un.org/en/story/2019/01/1031322>.

- In January 2019, the UN Security Council held an open debate to discuss the concrete impact climate change is having and will continue to have on peace and security. Further, the discussion sought to determine tangible ways to diminish the effects of global warming. This article summarizes the conclusions of the debate and is useful for placing the discussion of climate change and security in an international context, to support the necessity of domestic attention.

Werrell, C, & Femia, F. (2017). Defense Bill Passes with Climate Change and National Security Provision. *The Centre for Climate and Security*. <https://climateandsecurity.org/2017/11/22/defense-bill-passes-with-climate-change-and-national-security-provision/>.

- This article details the milestone of a defense bill passing with a climate change and national security provision in the USA. Every year since 1961, the US Congress passes the National Defense Authorization Act (NDAA) which determines which agencies are responsible for defense, establishes funding levels, and sets policies. In December 2018, the President signed the NDAA, which included the recognition of climate change as a direct threat to national security. This means that under law, this is an official position of the Administration. This event has been seen as more than symbolic, but as holding political significance, particularly in terms of adapting military infrastructure with climate change.

Werrell, Caitlin E., and Femia, F. eds. (2017). Epicenters of Climate and Security: The Geostrategic Landscape of the Anthropocene. *The Center for Climate and Security*.

[https://climateandsecurity.files.wordpress.com/2017/06/epicenters-of-climate-and-security\\_the-new-geostrategic-landscape-of-the-anthropocene\\_2017\\_06\\_091.pdf](https://climateandsecurity.files.wordpress.com/2017/06/epicenters-of-climate-and-security_the-new-geostrategic-landscape-of-the-anthropocene_2017_06_091.pdf).

- The editors of this report have been recognized on the UNESCO website for their work and this publication. This source focuses on the existing and potential security risks caused by climate change. The publication is broad, in that it presents a global overview rather than one focused on specific countries. There are different chapters that focus on different issues related to climate change, such as sovereignty, health, and migration, as well as more specific information on particular regions such as the coffee belt. The information presented in this publication is relevant to the Canadian context because it addresses issues relevant to CAF deployments. The section on health and the spread of diseases is relevant because in 2018 and 2019, as part of Operation GLOBE, some CAF members worked with U.S. forces to provide medical and dental attention to people in Central America, for instance. The chapter that focuses on sovereignty and non-state actors is relevant because there are also CAF members at the USCENTCOM base in Tampa, Florida, as part of CAF Operation FOUNDATION to monitor terrorism. In these ways, there is a lot of information available in this publication that compliments the information available in other sources.

World Economic Forum. (Dec 2015). *Arctic Investment Protocol: Guidelines for Responsible Investment in the Arctic*. Global Agenda Council on the Arctic.

[http://www3.weforum.org/docs/WEF\\_Arctic\\_Investment\\_Protocol.pdf](http://www3.weforum.org/docs/WEF_Arctic_Investment_Protocol.pdf).

- The Arctic Investment Protocol aims “to promote sustainable and equitable economic growth in the region that furthers community well-being and builds resilient societies in a fair, inclusive and environmentally sound manner” (p. 1). The following six principles lay the foundation for responsible Arctic development: build resilient societies through economic development; respect and include local communities and Indigenous peoples; pursue measures to protect the environment of the Arctic; practice responsible and transparent business methods; consult and integrate science and traditional

ecological knowledge; and strengthen pan-Arctic collaboration and sharing of best practices. This source is important for considering what and how projects can be carried out in the Arctic region in a sensitive and informed way.

## **SELECTED ACADEMIC SOURCES**

Agocs, C. (2018). Canadian Dilemma: Is There a Path from Systemic Racism Toward Employment Equity for Indigenous People in the Canadian Forces? *Journal of Military and Strategic Studies*, 19(2), 273-313.

- This article examines evidence of the under-representation Indigenous people, as well as some of the barriers to their full participation and employment in the Canadian Armed Forces. It reviews the extent to which the Canadian Armed Forces has demonstrated a commitment to comply with the Employment Equity Act, and suggests how further implementation of this Act could assist the Canadian Armed Forces in addressing Canada's promise of reconciliation, equality and fairness for Indigenous peoples.

This article is important in identifying obstacles for Canadian Armed Forces' meaningful and equitable engagement with Indigenous peoples regarding employment opportunities. It could possibly inform action items pertaining to developing more equitable employment strategies in the future.

Avis, P. (2006). Best Practices for Canadian Maritime Security—A Comparison of Three National Approaches. *Canadian Military Journal*, 7(4), 33-39. <http://www.journal.forces.gc.ca/vo7/no4/doc/notice-avis-eng.pdf>.

- This article compares “different national approaches to maritime security in order to identify a methodology to find best practices suitable for consideration by the Canadian government in future maritime security policy development. Moreover, the resultant best practices help us understand what choices are available to the various western democracies in the new battlespace, which has changed with the advent of strategic jihadist terrorism” (p.33). This source may be particularly useful when considering recommendations for Canadian military operating in the Arctic region as the geography of the Arctic changes and maritime security becomes more of an issue.

Balasevicius, T. (2011). Towards a Canadian Forces Arctic Operating Concept. *Canadian Military Journal*, 11(2), 21-31. <http://www.journal.forces.gc.ca/vo11/no2/doc/05-balasevicius-eng.pdf>.

- This article examines “the issues facing the Arctic and the likely roles that CF will be expected to undertake within the government's *Northern Strategy*. It will then look at the capabilities the CF should focus upon as it moves to align its force structure to meet Arctic requirements” (p.22). Of the issues facing Canada's Arctic, the author examines increased shipping, access to Arctic resources, environmental concerns, security threats, and the current limitations of CF to respond to these issues. This article may be useful when determining the areas that CF needs to improve on to address Arctic-specific threats and vulnerabilities.

Benoit, Cdr D.J. (2016). *Arctic Security and the Human Dimension: Challenges of the Inuit* [Master's thesis]. Canadian Forces College, Toronto, Canada. <https://www.cfc.forces.gc.ca/259/290/296/286/benoit.pdf>.

- This piece explores the meaning of security - and human security - within the context of Arctic Inuit inhabitants; it explores some of the major challenges faced by the Inuit, and ways in which the use of a security framework can both help and hinder human security issues facing Inuit communities. This paper is useful in reconceptualizing what encompasses a traditional security concern, and the ongoing role that the military plays in maintenance of Arctic security.

Brzoska, Michael. (2012). Climate Change as a Driver of Security Policy. In *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*, eds. Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link, and Janpeter Schilling, 165-184. Berlin: Springer-Verlag Berlin Heidelberg.

- This chapter analyzes the ‘climate change-security nexus,’ in terms of how states frame climate change as a security issue. Brzoska raises numerous questions and frameworks of analysis that can be used to read the more current Canadian publications regarding climate change and defence, such as the type of threat the government perceives climate change to be and, subsequently, the type of response prioritized. The analysis of different countries’ positions places the Canadian responses into perspective. This chapter is useful because it suggests analytical tools and frameworks through which to analyze some of the government sources listed in this bibliography. Therefore, although it does not directly address the question of how CAF operations and readiness might be affected by climate change, it provides the tools to analyze the themes in official government publications that do address the topic.

Charron, A. (2005). The Northwest Passage in Context. *Canadian Military Journal*, 6(4), 41-48.  
<http://www.journal.forces.gc.ca/vo6/no4/doc/north-nord-02-eng.pdf>.

- This article outlines the Canadian and American legal positions regarding the Northwest Passage. As climate change continues to melt sea ice, studies suggest that the Northwest Passage will be ice-free in sooner than originally anticipated, opening up an opportunity for shorter international shipping routes between Europe and Asia. Canadian policies and North American legal arguments are analysed for their application to the Northwest Passage debate. As this particular debate is still ongoing, this is a useful source for determining or adapting policies that are relevant to the changing geography of the Arctic.

Heide, R.L. (2016). Disasters as Security Threats: Mapping Humanitarian Assistance Needs and Priorities for the Canadian Armed Forces. In *Going to War? Trends in Military Interventions*, edited by Stéfanie Von Hlatky and Christian H. Breede, 38-55. Montreal; Kingston: McGill-Queen’s University Press.

- This chapter, found through the search form of the Government of Canada’s Defence Research Reports, details the types of implications that climate change will have for CAF operations. It outlines how climate change may lead to more natural disasters as well as human-made conflicts, thus covering a variety of conventional and unconventional security scenarios, such as resource shortages, political instability, and increased natural disasters. In her conclusion, Heide suggests that Canada’s response to the changing security environment means recognizing these new risks and ensuring that the CAF has the means to respond. Heide details the kinds of emergency preparedness that the CAF should expect and assess, such as cooperation with non-governmental and humanitarian organizations, as well as ensuring that CAF members have the language capabilities to interact with local peoples during their deployments. Therefore, this chapter is relevant to the research topic because it addresses how climate change can be expected to impact CAF operations and readiness, and how the CAF can prepare



and prioritize in response. Heide's assessment is particularly applicable and relevant areas like Central America, where the CAF and DART have responded numerous times to natural disasters.

Huebert, R. (2005). Renaissance in Canadian Arctic Security? *Canadian Military Journal*, 6(4), 17-29. <http://www.journal.forces.gc.ca/vo6/no4/doc/north-nord-eng.pdf>.

- This article, though older, explores still-relevant issues of policy-making related to Arctic security. It points to the challenges and complexities of security threats in the Arctic in particular. "When decisions have been made, they usually have been in response to the specific actions of one of Canada's northern neighbours, such as the United States or the Former Soviet Union (FSU). Furthermore, even when the Government of Canada has decided to act, it has generally proven unwilling to commit the resources required to meet the needs of those decisions" (p.17). Of particular use on this topic, the article contains a historical background on Arctic security; the idea of Arctic sovereignty/security as a false dichotomy, whereby there is an "either/or" proposition, suggesting that policies directed at protecting Canadian security have come at a cost to its sovereignty, and vice versa" (p.21); the Arctic Security Interdepartmental Working Group as an instrument of Arctic security policy. The article also includes recommendations for the short and long-term. A thorough source for understanding the state of Arctic security.

Kikkert, P. (2017). Finding Ihuma: Inuit Leadership Norms and Canadian Rangers Operations, in eds. A. Lajeunesse and P. Lackenbauer, *Canadian Arctic Operations, 1941-2015: Lessons Learned, Lost, and Relearned*. The Gregg Centre for the Study of War & Society, University of New Brunswick. <https://www.unb.ca/fredericton/arts/centres/gregg/what/publications/CdnArcticOps2017.pdf>.

- This article, in conversation with Canadian Ranger Doug Stern, presents the perspective of a Ranger with extensive knowledge about Arctic Operations, and experience working with Forces in the Arctic. The article expresses the nuance involved in the northern approach to operations, as it can be exemplified by the Inuit term "ihuma" as a leadership norm that exemplifies wisdom, reason, and knowledge. This article is important as it discusses ihuma as it is and could be operationalized within the context of Canadian Armed Forces operations in the north, through principles such as: the respect for the northern environment; adaptability and flexibility in decision-making; good listening skills; patience; and a proper attitude.

Lackenbauer, P. W. (2005). The Canadian Rangers: A "Postmodern" Militia That Works. *Canadian Military Journal*, 6(4), 49-60. <http://www.journal.forces.gc.ca/vo6/no4/doc/north-nord-03-eng.pdf>.

- This article offers an analysis of the Canadian Rangers from a postmodern lens. It explains the vitality and success of the Canadian Rangers, highlights the permeability between civil and military structures, and the erosion of martial values, and the increasing democratization of the Canadian Rangers. Of particular relevance to this project, this article offers an overview of the Canadian Rangers and highlights the relationship between the Rangers and the Indigenous communities with which it interacts in the Arctic in its shift away from hierarchy and bureaucracy into civilian and internationalization of the Forces.

Lackenbauer, P. W. (2018). Indigenous Communities are at the Heart of Canada's North: Media Misperceptions of the Canadian Rangers, Indigenous Service, and Arctic Security. *Journal of Military and Strategic Studies*, 19(2), 157-192.

- This article discusses the success of the Canadian Rangers as a visible example of diversity and inclusion within contemporary Canadian Armed Forces. Critically engaging with two media critiques of the Canadian Rangers, the article argues the importance of the Rangers in their successful leverage of unique Canadian skillsets from diverse ethnic and social backgrounds, so as to support home defence and public safety. This article discusses what makes the Rangers successful, labelling the program neither military nor Indigenous by nature; rather, Lackenbauer sees the program as a bridge between diverse cultures, and between civilian and military realms, so as to meaningfully engage with the diversity, knowledge, and skills of Indigenous peoples in Northern Canada.

Lackenbauer, P. W., Rob Huebert, & Ryan Dean. (2017). *(Re)Conceptualizing Arctic Security: Selected Articles from the Journal of Military and Strategic Studies*. University of Calgary Centre for Military, Security, and Strategic Studies. <https://carc.org/wp-content/uploads/2018/03/REconceptualizing-Arctic-Security.pdf>.

- “This book showcases selected articles on Arctic security published by the *Journal of Military and Strategic Studies (JMSS)* over the last decade. Five sections address a different sector of Arctic: 1) Geopolitics, Security, and the Changing Arctic; 2) Canadian Security; 3) the Northwest Passage; 4) Energy Security and Resources; 5) and Non-Arctic States” (p.iii). The chapters in this book “provide insights into how climate change, changes in governance systems, increased shipping (and the prospect of much more), energy and mineral development, Arctic states’ expanding military presence, and growing non-Arctic state interests are interacting to create a complex, evolving Arctic security environment” (p.iv). A useful compilation of relevant articles that cover a broad range of Arctic topics.

Lackenbauer, P., & A. Lajeunesse (2016). The Canadian Armed Forces in the Arctic: Building Appropriate Capabilities. *Journal of Military and Strategic Studies*, 16(4), 7-66.

- This article, amidst the debate about cooperation and conflict in the Arctic, argues that the Canadian Armed Forces are generally capable of meeting requirements to responsibly prepare for threats against Canadian security and safety, which are likely to emerge in the next decade. The article suggests that predictions of a rise in unconventional safety and security issues in the Arctic will require a whole-of-government framework, including the enhancement of an all-domain situational awareness over the Arctic, the preparation for responses to ranges of security issues, and assistance to other government departments. This article is helpful in reconceptualizing conceptual security threats, and considering the role and presence the Canadian Armed Forces holds - and can hold - in the Arctic. (See specifically: Figure 3: Northern Strategy: How Defence Contributes).

Lindsay, S.G. & J.F. Savard (2018). Organizational Influence on Individual Perceptions: The social representations of the Aboriginal military in the Canadian Armed Forces. *Journal of Military and Strategic Studies*, 19(2), 253-272.

- This article aims to answer the question of “what are the social representations of Canadian Armed Forces towards Indigenous peoples”, noting that these representations can facilitate or hinder the integration of Indigenous peoples into the Canadian Armed Forces. This article is useful in considering barriers to the achievement of mutual understanding and respect between the Canadian Armed Forces and Indigenous peoples.

Manson, LCol D. (2017). Planning Operation Nanook 2014: Lessons Learned from a Joint Task Force (North Perspective), in Lajeunesse, A., and Lackenbauer, P. Canadian Arctic Operations, 1941-2015: Lessons Learned, Lost, and Relearned. *The Gregg Centre for the Study of War & Society*, University of New Brunswick. <https://www.unb.ca/fredericton/arts/centres/gregg/what/publications/CdnArcticOps2017.pdf>.

- This article offers an individual perspective on the planning of Operation Nanook 2014. The article identifies the importance of the whole-of-government approach to respond effectively to the myriad of evolving sovereignty, security, safety, and environmental concerns associated with a changing Arctic. This article suggests consultation with local and Indigenous groups as essential in dictating a careful and respectful approach to conducting operations in the North. (See specifically: pg. 441).

McSweeney, Kendra, Erik A. Nielsen, Matthew J. Taylor, David J. Wrathall, Zoe Pearson, Ophelia Wang, Spencer T. Plumb. (2015). Drug Policy as Conservation Policy: Narco-Deforestation. *Science* 343(6170), 489-490.

- Deforestation and the destruction of habitats in Central America can have important climate implications. In this region, there is a correlation between increasing rates of drug trafficking and increasing rates of deforestation. The authors explain that efforts to intercept drug trafficking results in traffickers moving their operations into forests, leading to increasing levels of deforestation, which has a disproportionate impact on indigenous communities in Central America. Although not directly related to how climate change is affecting CAF operations, this short article gives some indication as to how CAF Operation CARIBBE may be indirectly affecting deforestation in Central America as traffickers attempt to find new ways to avoid these authorities. Given that there are numerous publications that detail how CAF infrastructure and operations have become more sustainable, the effects outlined in this publication could prove to be of interest in terms of the effectiveness of the logistics of the operation and the potential environmental impact.

Snook, Ray. (2010). "Climate Change and its Implications for the Canadian Forces." *Canadian Naval Review* 6, no.2. [https://cradpdf.drdc-rddc.gc.ca/PDFS/unc341/p811067\\_A1b.pdf](https://cradpdf.drdc-rddc.gc.ca/PDFS/unc341/p811067_A1b.pdf).

- This is an older publication, but one that outlines issues and questions that are still relevant for the CAF today regarding how the effects of climate change could affect CAF operations. Much of the information echoes the information in other sources, in terms of how the CAF will likely be called on for disaster relief, for instance, but the information is synthesized differently, and the author touches points not mentioned in other sources. One example is his mention of how CAF helicopters are not equipped to fly in certain temperatures, as an example of how climate change will affect resources and procurement. Therefore, this source is directly relevant to the topic, and would be useful in conjunction with Heide's chapter, for example, because the questions that both ask and cross reading of the texts illuminate how, for instance, Heide's chapter describes what Snook poses about how climate change will "affect the role(s) of the armed forces in the future."

Vullierme, M. (2019). *Towards human security in the Arctic: Lessons learned from Canadian Rangers and Junior Canadian Rangers*. Arctic Yearbook. [https://arcticyearbook.com/images/yearbook/2019/Scholarly-Papers/7\\_AY2019\\_Vullierme.pdf](https://arcticyearbook.com/images/yearbook/2019/Scholarly-Papers/7_AY2019_Vullierme.pdf).

- This research identifies elements that protect the human security of Canada's Arctic communities. This publication "analyses the relational dynamics within Canadian Rangers patrols, which are composed of Indigenous people under the responsibility of non-Indigenous instructors. It focuses on Nunavik, where

communities suffer from many risks related to the concept of human security and analyses a corpus of 21 qualitative interviews and field observations conducted in 2016 and 2017” (abstract). It outlines the processes responsible for the strengthening of human security in Arctic communities whereby the Canadian Rangers patrols and Junior Canadian Rangers patrols act as a source and a guarantee of human security. A useful source that examines the relationship between Canadian Rangers and Northern communities in the Arctic region of Canada.