

REPORT

At the Crossroads Climate Change, Canadian Defence, and the Arctic through a Systems Lens

By Jessica West, Jessica Stewart, Morgan Fox and Branka Marijan

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Acronyms and abbreviations

ADF	Australian Defence Force
CAF	Canadian Armed Forces
DND	Department of National Defence (Canada)
DOD	Department of Defense (United States)
ECCC	Environment and Climate Change Canada
GAC	Global Affairs Canada
ICC	Inuit Circumpolar Council
NWP	Northwest Passage
SAR	Search and rescue
SES	State Emergency Services (Australia)

Methodology

This report draws on a combination of data sources: a review of existing literature, insights gained from expert surveys, and the outcomes of two workshops. The first workshop, held in Waterloo, Ontario in November 2023, focused on academic perspectives. The second, convened in Ottawa, Ontario in June 2024, included representatives from government, academia, and civil society to explore the climate, peace, and security nexus. A follow-up survey of additional experts provided further data on how Canada can improve its capacity to respond to climate change while advancing peace and security.

Executive Summary

Climate change is no longer a distant concern but an urgent reality, with its impact on Canada's security, economy, and governance set to grow more profound in the decades ahead. While Canadian policy acknowledges climate change as a critical security threat, the current framing remains narrowly focused on military sovereignty, particularly in the Arctic. The "Defence Vision" (Department of National Defence [DND] 2024, p. ix) highlights the urgency of asserting Canada's sovereignty in the Arctic and northern regions, citing the changing physical and geopolitical landscapes as key drivers of new threats and vulnerabilities. However, while important to address, this perspective oversimplifies the complexities of climate-induced security risks.

The true implications of climate change in the Arctic, for Canada and Canadians, go beyond traditional military concerns. To effectively address these emerging challenges, Canada needs an integrated climate-security strategy that acknowledges the interconnectedness of environmental, economic, security, and social factors. A military-first approach — one that relies primarily on traditional defence capabilities to assert sovereignty and manage risks — cannot address the full range of threats posed by climate change. What is needed instead is a systems-based approach that integrates military, civilian, environmental, and Indigenous expertise to develop coordinated, long-term responses to enable domestic resilience and global leadership on climate security.

This report outlines five core findings that underscore the need for a comprehensive, systems-based approach to climate security, ensuring that Canada is better equipped to navigate the rapidly changing landscape and emerge as a leader in climate resilience and security. The report is intended reading for policymakers, defence planners, civil society organizations, and northern community leaders working at the intersection of climate resilience, security, and governance.

1. Climate Change as a Clear and Present Danger

The impacts of climate change are no longer distant possibilities — they are immediate and undeniable challenges. From increasing natural disasters to the erosion of Arctic infrastructure, Canada's military is being increasingly called upon for disaster relief and emergency response. As climate change continues to reshape the landscape, it threatens not only national security but the safety and well-being of communities across the country.

• Arctic warming threatens sovereignty, supply chains, and infrastructure.

- Communities across Canada are feeling the growing impact of climate-related events, with the 2023 wildfire season the most destructive on record (Natural Resources Canada 2024).
- Canadian Armed Forces (CAF) deployments for disaster relief have doubled since 2010 this is unsustainable with current resources.

2. The Limits of a Military-First Approach

Canada's military is already stretched thin as it takes on a growing role in disaster response, which detracts from its core defence responsibilities. As the climate crisis intensifies, this military-first strategy is proving inadequate. Moreover, there is a lack of coordination among military, civilian, and Indigenous agencies, which impedes the effectiveness of response efforts.

- While the CAF's training, equipment and logistical expertise have proven essential in disaster response, at heart many of the threats posed by climate change are not military in nature.
- CAF's growing disaster-response role is pulling resources from core defence.
- Interagency coordination is lacking, and Canada's policy approach is fragmented civilian and Indigenous agencies must be integrated.
- Growing maritime traffic in the Arctic will also require civilian infrastructure and create a need for emergency response and search-and-rescue operations.

3. Geopolitical Competition in the Arctic

As the Arctic undergoes rapid changes, the region has become an arena for heightened geopolitical activity. The melting ice is not just reshaping the environment but also creating new opportunities and competition over resources. This increasing "geopolitical noise" in the Arctic is driven in large part by major powers that are looking to exploit the region's resources and trade routes. To address these complex dynamics, Canada must prioritize diplomatic and cooperative efforts to foster stability in the region.

- A growing military focus and investments across the region make the Arctic more prominent to Canada's sovereignty.
- Limits of current governance structures are being reached as the existing multilateral order and diplomatic efforts are being eroded. In addition, existing alliances and relationships, such as that between Canada and the United States, are being strained.
- Powerful countries are looking for ways to exert control over the region, leading to potential resource grabs or further territorial disputes.
- The challenges of climate change require a revitalization of cooperation and governance in the region; Canada can demonstrate leadership by working with Indigenous communities.

4. Indigenous Leadership Is Necessary

Indigenous communities possess invaluable knowledge of Arctic conditions and have a

critical role to play in addressing climate-induced security challenges. However, current policies often treat Indigenous voices as outside of formal decision-making. Elevating Indigenous leadership is not just a matter of equity; it is essential to building effective, region-specific, climate-security strategies.

- Current policies treat Indigenous voices as secondary rather than critical to the decision-making process.
- Indigenous communities hold critical knowledge of Arctic conditions and northern environmental stability.
- Indigenous-led Arctic security programs (e.g., Canadian Rangers) should be expanded to provide more opportunities for collaboration with federal civilian and military response teams.
- It is important to consider infrastructure development and economic well-being of Indigenous communities.

5. A Made-in-Canada Approach to Climate-Security Strategy

While other nations are grappling with climate-induced security issues, Canada has a unique opportunity to develop a tailored strategy suited to its specific needs and challenges. However, Canada's security agencies currently operate in silos, making crisis response inefficient. A made-in-Canada approach to Arctic climate security must begin with systems thinking—a holistic method that addresses the complex, interconnected nature of climate, peace, and security challenges by focusing on root causes rather than symptoms.

- Canada cannot rely on a ready-made model from any one country to navigate the security challenges posed by climate change.
- Canada's security agencies operate in silos, making crisis response inefficient.
- There is a need to develop a climate-informed defence strategy that integrates all sectors and a systems-based approach that provides necessary layers of coordination and engagement across CAF/DND and civilian agencies.

Summary of Recommendations

The workshops and research findings offer valuable insights into the kinds of policies the Canadian government should consider. Together, these recommendations present a comprehensive and proactive approach for integrating climate change into Canada's national security strategy. By prioritizing climate-responsive security measures, Canada can strengthen resilience to environmental and security risks, particularly in the Arctic and remote communities. The proposed actions focus on enhancing coordination across federal, provincial, and Indigenous governance bodies, investing in climate-resilient infrastructure, expanding Indigenous-led security initiatives, and positioning Canada as a global leader in the diplomacy of climate security. Implementing these recommendations will not only bolster Canada's climate resilience but also ensure that national security remains aligned with the realities of a changing climate.

1. Build Climate-Resilient Infrastructure

- Upgrade Arctic surveillance capabilities, space-based services, airfield infrastructure, and emergency hubs, as these are multipurpose response supports.
- Consider ways to address the possible challenges of expanded multipurpose infrastructure on local communities, to ensure that those communities are not disrupted.
- Integrate climate-impact assessments into all defence planning.

2. Establish a National Climate-Security Task Force

- Bring together DND, Public Safety Canada, Environment and Climate Change Canada (ECCC), Indigenous, and local leadership to establish a National Climate-Security Task Force.
- Set clear CAF engagement protocols for disaster response.

3. Strengthen Canada's Leadership in Arctic Security

- Take a leading role in multilateral Arctic governance to prevent undue military escalation.
- Expand joint planning and exercises with climate-security integration.

4. Expand Indigenous-led Security Initiatives

- Increase funding and authority for the Canadian Rangers.
- Support Indigenous-led search-and-rescue (SAR) operations.

5. Shift from Crisis Response to Proactive Security

- Train defence and civilian agencies in joint climate-risk simulations.
- Develop a DND Climate Adaptation Strategy with forecasting models.

While the case for a systems-based, climate-responsive security strategy is clear, putting it into practice will not be straightforward. Challenges include institutional inertia, siloed decision-making within federal agencies, limited coordination between military and civilian bodies, and capacity constraints in some northern communities. Moving beyond short-term crisis response will require not only political will and consistent funding, but also sustained leadership, cross-sector collaboration, and long-term policy alignment.

Introduction: Climate Change and the Future of Canada's Security

Climate change is no longer a distant environmental issue; it is of immediate and pressing concern to Canada's people. It represents a threat that will only intensify in the decades to come. Rising temperatures, extreme weather events, and Arctic ice melt are reshaping the national-defence landscape, straining military resources, disrupting infrastructure, and increasing geopolitical tensions in the North. These changes affect communities first, threat-ening livelihoods, displacing populations, and overwhelming local emergency response systems. This reality demands a fundamental shift in Canada's security strategy; one that

recognizes that climate security is not only about protecting borders — it is about protecting people.

The Canadian Armed Forces are already on the front lines of climate change, responding to more domestic disasters than ever before. Wildfires, floods, and hurricanes have led to record-breaking CAF deployments for emergency relief, pulling personnel and resources away from core defence missions. Meanwhile, in the Arctic, climate change is accelerating competition for resources, access to shipping routes, and territorial influence, drawing in global powers like Russia and China. Canada must act now to adapt its defence strategy to these new realities or risk being unprepared for the security challenges ahead.

This report examines the intersection of climate change and national security, outlining five key challenges that must be addressed:

- The growing burden on the CAF due to climate-driven disasters, and the need for stronger local and civilian-led emergency response systems;
- The limits of a military-first approach and the importance of integrating climate resilience into security planning;
- Geopolitical competition in the Arctic, and the need to invest in multilateral cooperation and diplomacy;
- The critical need for Indigenous leadership in Arctic security and community resilience;
- The importance of a systems approach to thinking, ensuring that Canada's defence, civilian, and environmental policies work together.

To meet these challenges, Canada must move beyond a security-only approach and adopt a more integrated strategy that aligns defence priorities with climate resilience and community needs. Specifically, Canada must adopt a systems thinking approach to Arctic climate security that addresses the complex, interconnected nature of climate, peace, and security challenges by focusing on root causes rather than symptoms of this wicked problem (Grewatsch, Kennedy, and Bansal 2021).

This requires proactive planning, collaboration with international allies, and inclusive decision-making — particularly with Indigenous communities — to ensure sustainable and secure outcomes for all communities. By leveraging its unique position, Canada could lead in defining northern security and shaping global climate-security responses.

Climate Change as a Clear and Present Danger

Climate change is no longer a future threat but a present reality with profound consequences for Canada's security, economy, and governance. From intensifying wildfires and floods to permafrost melt in the Arctic, climate-driven disruptions are threatening people, communities, and national defence operations. Yet, Canada's security strategy remains anchored in twentieth-century defence models, focused on traditional military threats rather than the cascading risks posed by climate instability. Amid assertive rhetoric from the new United States administration and the fraying of Euro-Atlantic alliances, shifting away from entrenched hard-security paradigms has become increasingly difficult. Yet today's security challenges, compounded by climate change, demand a more nuanced, multidimensional approach.

Without rapid adaptation, Canada risks falling behind in both domestic resilience and global leadership.

Climate Change as a Direct Security Threat

Canada is experiencing climate-driven disasters at an unprecedented scale, threatening lives, economies, and national security. Canada had its worst wildfire season on record in 2023, displacing thousands and damaging critical infrastructure (Natural Resources Canada 2024). By 2100, the fire season in certain forested regions may have increased by more than a month (Natural Resources Canada 2025a, para 6). Changes to the climate are increasing the risk of floods — Canada's most common and costly natural disaster — putting people and communities at risk (Canadian Climate Institute 2024). Canada's extensive coastlines of more than 226,000 kilometres, bordering the Pacific, Atlantic, and Arctic Oceans, are particularly susceptible to the impacts of climate change, including temperature changes, sea-ice melt, sea-level rise, permafrost thaw, erosion, storm surges, and ocean acidification (Wade 2022; Fisheries and Oceans Canada 2023). No place on Earth is as vulnerable as Canada's north.

The Arctic is warming four times more quickly than the global average, producing significant environmental impacts (WWF Global Arctic Programme 2025; Rantanen et al. 2022):

- Glaciers are melting, raising sea levels.
- Ice thickness is decreasing by 13 percent per decade.
- Permafrost is thawing.
- Increased shipping, possible because of the opening of sea routes from ice melt, is producing more air and water pollution.
- Wildfires are more frequent.

These changes have wide-reaching implications for Canada and Canadians, changing both the physical and geopolitical landscape in the region. Physical changes include threats to wildlife habitats; rising sea levels; and more frequent weather events like floods, blizzards (Baker and Barnard 2024) and high winds (Francis 2024), all of which directly affect Canadian infrastructure and communities. Economic opportunities and geopolitical tensions are driving increased use of a newly accessible Northwest Passage (NWP), including by navies of various nations (Speirs, Tiaglei, and Charron 2024). The implications of these changes affect national, environmental, human, cultural, economic, and international security:

- National Security: Climate change makes the Arctic more accessible to illegal shipping, irregular migration, and military incursions, posing threats to Canada's sovereignty. Other threats arise from growing regional tensions among nuclear-armed states.
- Environmental Security: The effects of melting ice, thawing permafrost, coastal erosion, and pollution create feedback loops that accelerate climate change and harm ecosystems.

- Human Security: Extreme weather events like floods and wildfires cause accidents, fatalities, and health issues. Indigenous Arctic communities face disruptions in daily life, including easy access to food and transportation, reinforcing inequality and vulnerability.
- Cultural Security: Climate change threatens Indigenous cultures, disrupting their connection to the land, which fosters social and emotional distress.
- Economic Security: Extreme weather impacts infrastructure, particularly in the Arctic, and increases the cost of disaster response, affecting economic well-being and stability in rural and remote regions.
- International Security: The combination of a growing military presence, geostrategic competition, and territorial disputes makes cooperation more challenging and raises the risk of military confrontation.

Rural and Indigenous communities are at the forefront of these security challenges, facing the greatest risks from Arctic permafrost melt, wildfires, and extreme weather. Materials from National Resources Canada (Natural Resources Canada 2024), the Canadian Climate Institute (Firelight Research Inc. with the Canadian Climate Institute 2022), and the World Economic Forum (Aarti Lila Ram and Eric Shahzar 2024) indicate many reasons for this increased vulnerability):

- Geographic Vulnerability: Many rural and Indigenous communities are located in areas highly susceptible to the impacts of climate change, such as coastal regions, permafrost zones, and wildfire-prone forests.
- Reliance on Natural Resources: Many Indigenous communities rely on traditional hunting, fishing, and gathering practices, which are directly affected by ecosystem shocks and changes in wildlife populations.
- Infrastructure Challenges: Rural and remote communities, particularly Indigenous communities, often face infrastructure challenges, including limited access to healthcare, transportation, and emergency services when existing roads, buildings, and other infrastructure are damaged because of permafrost thaw.
- Socioeconomic Factors: Historical and ongoing marginalization and socioeconomic disparities can increase vulnerability to climate change impacts.

Strained Resources

Responding to climate-related disasters in Canada is straining emergency response systems (ECCC 2023). Although provincial and territorial authorities are the first to respond to a natural disaster, the resources of the Canadian Armed Forces are increasingly called on for additional assistance. CAF disaster relief deployments have doubled roughly every five years since 2010, increasing from an average of two annual requests in 2010 to four in the years 2017 to 2021, and reaching eight in 2023 alone (House Standing Committee on National Defence 2023). CAF leadership has indicated that the "same [level of] support will not be available as it did in previous years due to other commitments" (Pugliese 2024). As such, capacity to respond to larger-scale climate emergencies in Canada is strained.

Moreover, the effects of climate change in Canada's Arctic and northern communities impede the ability to respond to traditional security threats: Arctic permafrost degradation

threatens military bases, roads, and communication systems.

The Arctic and Canada's Defence Priorities

The Department of National Defence and the Canadian Armed Forces recognize that climate change is a threat to peace and security in the Arctic. Canada's most recent defence policy update, *Our North, Strong and Free: A Renewed Vision for Canada's Defence*, states: "The most urgent and important task we face is asserting Canada's sovereignty in the Arctic and northern regions, where the changing physical and geopolitical landscapes have created new threats and vulnerabilities to Canada and Canadians" (DND 2024a, p. 9). In addition to shoring up defence capabilities in the region, it calls for investing in diplomacy and expresses a desire for greater collaboration with Indigenous partners and northern communities. New in this policy is recognition of the need to adapt to a changing climate by improving equipment and housing and finding ways to reduce greenhouse gases.

These core themes are also highlighted in our research and dialogue with government, academic, civil society, and community experts, and they inform the organization of this report. Putting this vision into practice is, however, difficult.

A Fragmented Policy Landscape

Although climate change in the Arctic is central to Canada's current defence vision, defence is not the only policy framework through which Canada engages in climate-related issues in the region. Others include:

- Canada's 2024 *Arctic Foreign Policy* (Global Affairs Canada [GAC] 2024a), which also has climate change at its core;
- Canada's *Arctic and Northern Policy Framework* (Government of Canada 2019), which is a whole-of-government approach to Canada's priorities, activities, and investments in the Arctic and the North, intended to align national, international, and northern policy priorities and objectives;
- The *Inuit Nunangat Policy* (Government of Canada 2025), which informs the design, development, and delivery of all federal policies, programs, and services that apply in Inuit Nunangat, including those of the Canadian Armed Forces.
- *The Canadian Mining and Minerals Plan* (Natural Resources Canada 2019), which includes as objectives the promotion of climate action and environmental protection, and participation by Indigenous peoples.

However, currently there appears to be a lack of the coordination needed to bring these policies together as a coherent strategy.

Table 1: Canadian policies relevant to peace and security in the Arctic

- *Arctic Foreign Policy* (2024): Acknowledges the complexity of climate change and security concerns but requires further guidance on implementation as well as the necessary resources to ensure that the needs of Indigenous communities are taken into consideration.
- *Defence Vision* (2024): Emphasizes the importance of asserting Canadian sovereignty and protecting national interests in the Arctic, while noting the impacts of climate

change in the region. How a new government will implement this vision is not known.

- *Canada's National Adaptation Strategy* (2022): Prioritizes climate adaptation but does not link it explicitly to national security or indicate the role of the CAF.
- *Canada's Emergency Management Strategy* (2019-2030): Stresses disaster risk reduction but does not clearly define CAF's role in any national emergency response.
- *Arctic and Northern Policy Framework* (2019): Draws attention to the gap between Arctic policy and national security planning but does not include a clear Arctic security strategy.
- *Canada's NORAD Modernization Plan* (2022): Strengthens Arctic early-warning capabilities but does not address climate infrastructure risks.
- *Mining and Minerals Plan* (2019): Promotes increased critical minerals and mining development as part of economic and national security strategy but is not linked to climate adaptation, security governance, and Indigenous leadership frameworks.

Given this fragmented policy landscape and the numerous — and in some cases conflicting — military and other interests in the Arctic, Canada's defence vision recognizes that new approaches to Arctic security are called for (DND 2024a, p. 4); what those new approaches should look like remains unclear. What is clear is that the current ad hoc and reactionary approach is insufficient, and a military-first approach is misplaced.

The Limits of a Military-First Approach

A military-first approach—one that relies primarily on traditional defence capabilities to assert sovereignty and manage risks—cannot address the full range of threats posed by climate change. While conventional military tools remain important, they are limited in their ability to respond to the complex and interconnected challenges emerging in the Arctic. As climate change reshapes the region, security concerns increasingly include environmental degradation, resource competition, and growing geopolitical tensions. These evolving realities demand a strategic shift—one that places diplomacy, collaboration, and innovative governance at the center of efforts to ensure long-term stability and peace in the Arctic. This section examines the limitations of traditional military frameworks and underscores the need for a more holistic, climate-responsive approach to Arctic security.

CAF Limitations

While the Canadian Armed Forces have a prominent role to play in climate-related crises, questions remain about whether they are best suited to respond to these crises. On the one hand, one of the CAF's eight core missions is to support civil authorities and nongovernmental partners in domestic disasters and emergencies (DND 2021). And the CAF's rapid deployment, logistical expertise, equipment, and operational capacity in challenging conditions often make it the default responder to disasters. However, this responsibility must be balanced against other defence obligations. The increasing frequency and severity of climate-related disasters have raised concerns within the defence community regarding the growing reliance on the CAF for disaster relief (Lee 2024). This reliance risks overstretching the CAF and compromising its primary defence capabilities (Babin 2024). Experts have also raised concerns about over-reliance on a single institution that lacks a focused mandate on domestic security and crises.

The Human-Hard Security Entanglement

While the human and environmental risks of the climate crisis are a top concern, there is growing recognition that these challenges are deeply entangled with traditional hard security threats. Canadian policies acknowledge this relationship, recognizing that climate dynamics will shape future security. This is reflected in initiatives such as *Canada's Changing Climate* reports (Natural Resources Canada 2025b), which detail the accelerating effects of climate change; the *National Security and Intelligence Committee of Parliamentarians' Assessment on Climate Change and National Security* (Dalby and Lawrence 2021), which identifies climate change as a key national security concern; and the CAF's integration of climate change into strategic planning, including investments in Arctic capabilities and disaster response.

Climate change impacts extend beyond domestic natural disasters, exacerbating global security tensions (Conger and Fetzek 2021). For example, rising sea levels and extreme weather threaten naval bases and critical military infrastructure, forcing costly adaptations. As detailed below, in the Arctic, melting ice is driving geopolitical competition among nuclear-armed states such as the United States, Russia, and China, as they seek to exploit newly accessible resources and shipping routes, including Canada's Northwest Passage. Elsewhere, climate-driven droughts and food shortages have contributed to political instability and conflict, as seen in regions like the Sahel and the Middle East (Sova and Zembilci 2023). These dynamics necessitate a shift in defence strategies, balancing traditional military thinking with conflict prevention and resilience-building efforts.

The COVID-19 pandemic vividly illustrated the rapid emergence of non-traditional threats and their profound national-security implications. The CAF Operation LASER, which deployed personnel to support long-term care facilities, demonstrated the military's role in responding to such crises (DND 2024b). While this specific deployment was unforeseen, the DND and CAF's 2013-2040 strategic foresight document had already anticipated the growing role of the military in domestic emergencies (DND 2014). It underscores the need to integrate climate change and other systemic risks into long-term strategic planning, recognizing that future security threats will not always take traditional forms and may appear at any time.

More broadly, climate change is part of a wider set of non-traditional security challenges, including pandemics, cyber threats, and large-scale population displacement. These risks are often transnational in nature, creating systemic vulnerabilities that cannot be addressed through military force alone. As a result, security planning must increasingly integrate climate resilience, international cooperation, and adaptive strategies to mitigate cascading threats.

Scholars and workshop participants alike have raised questions about whether the training, protocols, and culture of the CAF, which are associated with traditional defence practices that are linked to the use of force, are well suited to the humanitarian needs of disaster response, or the unique requirement of responding to the long-term social, economic, and

environmental aspects of disaster recovery, particularly in the Arctic (Lackenbauer and Kikkert 2024; Huebert 2024; Lackenbauer and Greaves 2016). Our discussions with experts also raised questions about possible psychological trauma associated with an active military presence in local communities.

Indeed, while Canadian Arctic security discussions often prioritize traditional defence, border protection, and sovereignty, our research calls for a broader understanding of national security that is rooted in the perspectives and experiences of northern inhabitants and reflects a community-centred approach.

Nontraditional Security Threats

The implications of climate change are multifaced and extend far beyond the traditional scope of national defence. When polled during the 2024 Ottawa workshop, experts identified extreme weather events and food insecurity as top concerns, and sovereignty at the bottom. Above all, participants emphasized the need to grapple with the impact of "radical uncertainty" on both the environment and security.



Figure 1: "Plot the impacts of climate change in the Arctic"

Poll taken during a workshop of experts, Ottawa, June 2024

The message here is not that protecting Canada's borders and exercising our sovereignty are unimportant but that a business-as-usual approach to Arctic defence in a rapidly changing climate will not work. Although the political landscape in Canada, particularly its relationship with the United States, has shifted since the workshop, evidence of ongoing military cooperation between the two countries endures, notably in the Arctic (Cecco 2025b).

A Shared Infrastructure Imperative

Across every aspect of research, concerns about infrastructure for both military use and local communities were preeminent. During workshop discussions, participants raised concerns about how the infrastructure-related impacts of climate change would affect the logistical capacity of the CAF to respond to emergencies or security events in the region as the climate crises worsen. Transportation and access to remote regions is a key issue. For example, one participant asked, "What happens if we can't use snowmobiles [in the Arctic] because the roads have turned to slush?" In brainstorming what "good infrastructure" looks like, many pointed to practical, everyday needs such as roads, airstrips, communication and data capabilities, and refuelling stations.

Another key message: governments need to think holistically about military and community-based infrastructure. Many forms of Arctic infrastructure are dual-use — what supports local communities can also enhance national security and vice versa. Investments in airstrips, ports and maritime infrastructure, and communications networks, for example, can facilitate both military operations and essential services like medical evacuations and supply networks. Recognizing and planning for these overlapping functions is critical to ensuring sustainable and resilient infrastructure in the region.

Rising Geopolitical Tensions

The effects of climate change in the Arctic, and the responses to it, will not only affect Canada and Canadians but will have global repercussions. Addressing these challenges will require a greater focus on diplomatic and governance solutions.

Geopolitical Noise

As rapid warming causes Arctic ice to recede, the region is emerging as a critical arena for geopolitical competition. The melt is opening previously inaccessible shipping routes, exposing untapped natural resources, and presenting new security challenges. While the Arctic has historically been an area of cooperation, shifting environmental conditions and growing global interest are threatening to destabilize the region. Canada must navigate an increasingly complex Arctic landscape, balancing sovereignty, security, and environmental protection.

Key issues include:

- Newly Accessible Shipping Routes The Northwest Passage and Russia's Northern Sea Route are becoming more navigable, reducing global trade distances and attracting commercial interest.
- Resource Competition The Arctic holds an estimated 13 percent of the world's undiscovered oil and 30 percent of its natural gas. As ice melts, resource extraction becomes more feasible, increasing tensions over territorial claims.
- Security Challenges The Arctic's changing landscape raises concerns about military presence, surveillance, and emergency response capabilities in a remote and fragile environment.

Melting ice is opening previously inaccessible shipping routes, exposing untapped natural resources, which in turn present new challenges. Key players such as Russia, China, and some Western nations are vying for control over the region's resources and strategic routes. Russia has significantly strengthened its military presence, modernizing military facilities and airfields abandoned after the Cold War (Bermudez, Conley, and Melino 2020; Kjellén 2022. For instance, Russia has revitalized air bases like Tiksi and Severomorsk, expanding its Arctic military capabilities to secure its Arctic territories.

China, through its Polar Silk Road initiative, is positioning itself as a major player in the region. This initiative, part of the broader Belt and Road framework, aims to open new Arctic shipping lanes by capitalizing on the receding ice (Nakano and Li 2018). China seeks to diversify trade routes, bypassing geopolitical chokepoints like the Strait of Malacca. The Northern Sea Route, supported by Russia's Arctic infrastructure, is central to China's ambitions for a faster Europe-Asia corridor (Krishman 2020; Humpert 2011). The deepening cooperation between Russia and China in the Arctic raises concerns about the region's long-term stability and governance.

In response, Western states — including the United States, Canada, and Finland — are modernizing their Arctic capabilities. These nations have formed an "Icebreaker Collaboration Effort" (ICE Pact), bolstering shipbuilding capacities, particularly for icebreakers, to address strategic concerns related to activities in the Arctic region, which include countering the influence of Russia and China (Dept. of Homeland Security 2024). However, these actions also contribute to the growing militarization of the region, underscoring the need for sustained diplomatic engagement to prevent conflict.

NATO plays a growing role in shaping Arctic security dynamics, particularly as climate change accelerates geopolitical competition in the region. In the *NATO Climate Change and Security Action Plan* (2021), NATO officially recognized climate change as a "threat multiplier," affecting military readiness, infrastructure, and global stability (Palle, Estève, and Opillard 2022). This recognition aligns with broader efforts by Arctic states to integrate climate considerations into their defence planning.

The modernization of the North American Aerospace Defence Command (NORAD) also includes an Arctic focus (Charron 2015).

Non-Arctic states are also asserting a presence in the region. For example, China calls itself a "near-Arctic state" (The State Council Information Office of the People's Republic of China 2018), emphasizing economic investments and strategic partnerships, and the United Kingdom has developed an Arctic policy and framework (Polar Regions Department, Foreign Commonwealth & Development Office (2023). The European Union has declared strategic and day-to-day interests in the Arctic (European Commission & High Representative 2021), while NATO is increasing its presence in the Arctic (Stoltenberg 2022).

While many states with a newfound interest in the Arctic are otherwise geographically separated from the region, the UN Convention on the Law of the Sea (UNCLOS) and international law more generally allow for all states to enjoy the rights of navigation, overflight, fishing, scientific investigation, and resource exploration and exploitation, including in parts of the Arctic Ocean (Long 2018). Finally, Canada has territorial disputes with countries including the United States, Denmark, and Russia that involve Arctic Sea floor claims and access to resources (Weber 2024), and which test Canada's strategic interests and defence priorities with key allies such as the United States. The United States and Canada have established a joint task force to address these issues, aiming to provide clarity on Arctic maritime boundaries and ensure responsible resource management (GAC 2024b), but meaningful engagement with the current U.S. administration has proven challenging.



Figure 2: The Northwest Passage (NASA Earth Observatory 2024)

Finally, the Arctic is a region where nuclear powers are increasingly competing. Russia has heavily militarized its Arctic territory, expanding bases, deploying advanced weapons systems, and modernizing its nuclear-armed submarine fleet, which operates under the Arctic ice (Starchak 2024). Meanwhile, the Arctic is a growing focus of strategic interest for the United States (Pechko 2025). China has also increased its scientific and economic interests in the region, raising concerns about its long-term strategic ambitions (Devyatkin 2023).

The combination of melting ice, increased military activity, and nuclear armed states raises risks of miscalculation or unintended escalation. As geopolitical tensions rise, particularly between NATO and Russia, the Arctic's role in global security could shift from a historically cooperative domain to one of heightened competition. This underscores the need for diplomatic engagement, confidence-building measures, and governance mechanisms to prevent conflict and ensure stability in the region.

The Limits of Existing Governance Mechanisms

The Arctic is governed by overlapping regional and international frameworks. These include the Arctic Council, an intergovernmental forum promoting cooperation among the eight Arctic states: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States. Cooperation on emergency response and search-and-rescue efforts is facilitated by the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (2011). The climate-security nexus is a shared priority across the region, reflected in policies such as the U.S. National Strategy for the Arctic Region (The White House 2022).

Interstate collaboration has been a key goal of Arctic governance efforts. The Carnegie Endowment for International Peace highlights several areas in which cooperation in the Arctic is essential. In addition to multilateral search-and-rescue operations, this list includes climate change research and mitigation, environmental protection efforts, maritime safety and infrastructure, and Indigenous participation (Collins et al. 2015). As well, crisis response is seen as a necessary point of cooperation more generally (Rideau Institute 2021).

The Arctic Council remains the primary platform for environmental cooperation in the region, addressing issues such as oil spills and risks posed by wildfires and maritime shipping. However, following Russia's 2022 invasion of Ukraine and the later ousting of Russia from the Council, the body's operations have been significantly impacted, although modified and limited functions have continued (Cunningham 2024). Yet, as outlined in the Ottawa Declaration of 1996, its mandate explicitly excludes military security.

Despite rising tensions, cooperation in the Arctic remains not only possible but necessary. The largest Arctic states by landmass, Russia and Canada, have the most to lose from a lack of cooperation, given their shared geographic and climatic similarities. Both countries have previously supported collaborative approaches emphasizing sustainable development and joint security efforts. For example, the 2011 Arctic Search and Rescue Agreement demonstrated that Arctic nations can work together even in an era of growing competition.

The need for cooperation is increasing as the Arctic ice shrinks. For example, Norway's approval of mineral exploration raises environmental concerns, while increased shipping activity in the NWP threatens fragile ecosystems. While the NWP is often seen as a key Arctic trade route, scientific studies suggest that climate change may actually increase ice breakage in the passage, making navigation more unpredictable and hazardous, as well as potentially reducing the length of the shipping season (Cook et al. 2024). Canada's Arctic also lacks key infrastructure, such as maritime ports and refueling stations, which could strain Canada's ability to conduct effective SAR operations.

Balancing Defence with Diplomacy

An overly militarized approach to the Arctic poses additional security risks while neglecting critical environmental and human security concerns. Ensuring that defensive measures do not escalate tensions or weaken existing governance frameworks, such as the Arctic Council, will be essential. A balanced strategy that integrates diplomacy, sustainable development, and defence — rather than focusing solely on military competition — will be crucial for maintaining long-term stability in the region.

Diplomatic efforts should prioritize reaffirming international agreements like the Open

Skies Treaty, with Arctic states urging Russia to rejoin to enhance transparency and limit escalation. At the same time, defence strategies — such as improving maritime security, investing in ice-capable surveillance assets, and strengthening domain awareness — should complement diplomatic initiatives. Meanwhile, sustainable development programs can mitigate the environmental and ecological risks associated with deep-sea mining, shipping, and resource extraction, ensuring that Arctic governance is both environmentally responsible and strategically sound.

However, viewing Arctic issues solely through the lens of geopolitical competition among nations overlooks the region's complex environmental, social, and economic realities. Although territorial disputes and military concerns are valid, this narrow perspective risks overshadowing vital Indigenous and local viewpoints necessary for truly understanding and addressing Arctic challenges.

Looking forward, NATO's involvement in the Arctic has strategic and operational dimensions. Through initiatives like the NATO Climate Change and Security Centre of Excellence, member states collaborate to assess vulnerabilities and develop joint responses. The alliance is also expanding its Arctic presence, with Nordic members Finland and Sweden joining NATO, strengthening collective defence in the region. The increasing alignment of NATO's Arctic policies with climate security reflects a shift toward integrating environmental risks into defence strategy.

As competition to exploit Arctic resources intensifies, safeguarding Indigenous rights and ensuring meaningful participation in decision-making processes must be a priority. Additionally, crisis response — whether for environmental disasters, in search- and-rescue operations, or during security incidents — will require international coordination, reinforcing the need for cooperation rather than confrontation in the region.

Expanding Canadian Diplomacy

Canada's 2024 Arctic Foreign Policy (GAC 2024a) places climate change at its core, defining the Arctic as a crucial crossroads where climate, trade, and global security intersect. In contrast to the defence policy, which emphasizes military readiness, the foreign policy prioritizes Arctic security collaboration through dialogue among likeminded states, enhanced information sharing with Canadian regional leaders, and coordinated science and research initiatives that integrate foreign policy and research security considerations (Stewart and Marijan 2025). This approach reflects a recognition that security in the Arctic is not just about military deterrence but about fostering stability through cooperation and shared knowledge.

However, a notable gap in the policy is its lack of emphasis on opportunities to promote collective peace and security in the Arctic through cooperation on climate action. This omission is concerning, particularly as the region is increasingly framed as a zone of strategic competition by Canada, its allies, and nations like Russia. Collaborative climate initiatives, such as joint research on ice loss, sustainable fisheries management, or coordinated responses to extreme weather events, could serve as confidence-building measures to reduce tensions.

By failing to explicitly link climate cooperation with broader security objectives, the policy

misses an opportunity to reinforce Arctic governance mechanisms, such as the Arctic Council, as platforms for engagement — even in times of geopolitical strain. As competition in the region intensifies, fostering Arctic stability will require not just defensive posturing but proactive diplomacy, with shared environmental challenges becoming an entry point for renewed dialogue and trust-building.

Indigenous Leadership Is Essential

Indigenous communities are on the front lines of Arctic climate change, experiencing its impacts firsthand through melting permafrost, disappearing sea ice, and shifting ecosystems. And even though these northern communities have centuries of lived Arctic experience and deep-rooted knowledge of the region, Indigenous voices have historically been sidelined by the bodies making security and policy decisions. Going forward, Canada must recognize that true Arctic security cannot be achieved without Indigenous leadership.

Indigenous Communities at the Centre of Arctic Security

Climate change is not an abstract future risk for Arctic Indigenous communities; it is a lived reality linked to:

- Environmental Disruptions Thawing permafrost is undermining infrastructure, while changing ice conditions threaten traditional hunting and fishing practices and food security (Firelight Research Inc. with the Canadian Climate Institute. 2022); these changes have been described as a potential "evaporation of assets."
- **Cultural and Sovereignty Concerns** As global interest in the Arctic grows, Indigenous communities face the challenge of maintaining sovereignty over their lands and protecting their ways of life (Cecco 2025a; Coggins et al. 2021; Snook et al. 2022).
- Search-and-Rescue Needs The combination of unpredictable ice conditions with more commercial and military activity in Arctic waters increases the risk of accidents, requiring local expertise for effective SAR operations (Canadian Geographic 2018).

Local communities are not only vulnerable; they are also active agents of change and resilience. Existing Indigenous leadership includes safeguarding carbon sinks, managing Indigenous Protected and Conserved Areas, and promoting nature-based adaptation solutions (ECCC 2024; The Indigenous Circle of Experts 2018). The Canadian Rangers, comprised largely of local Indigenous members, provide vital on-the-ground knowledge, surveillance, and support for community safety and environmental monitoring, strengthening local resilience (DND/CAF Ombudsman 2023).

The local communities and Canadian Rangers have also been at the forefront of the waxing and waning interest in the region by various federal governments and promises of investments. As Ryan Lennie, an Inuvik resident and a Canadian Ranger, notes in his interview with *The Guardian*, "It's hard to know what to make about these claims. But at the end of the day, I'm more worried about the lack of infrastructure we have up here than running into a Russian when I'm out on my snowmobile" (Cecco 2025b). Indigenous communities also exercise leadership internationally, through organizations such as the Inuit Circumpolar Council (ICC), a multinational nongovernmental organization that represents approximately 180,000 Inuit and Yupik people living in Alaska (United States), Greenland (Denmark), Chukotka (Russia), and across northern Canada (Inuit Circumpolar Council Canada 2025). The ICC advocates for Inuit rights and interests at international forums, including the United Nations and the Arctic Council, and promotes policies to safeguard the environment and communities in the face of climate change.

Elsewhere, the Sámi Arctic Strategy (Sámiráđđi 2020), from the Sámi Council, which represents more than 100,000 Indigenous people from Norway, Russia, Sweden, and Finland, outlines a vision for protecting Sámi rights and culture against Arctic development and climate change (Middleton 2019). The Council emphasizes self-determination, demanding free, prior, and informed consent. It promotes sustainable economic growth and integrates traditional knowledge into climate adaptation. Through international collaboration, the Council advocates for Indigenous rights and sustainable Arctic development, offering a model for Canada.

From Consultation to Rights

Colonialism, along with uncertainty, was identified as a significant aspect of climate security governance in Canada's North during expert consultations. Recognizing the Canadian government's legal duty to consult and accommodate Indigenous peoples, the *Arctic and Northern Policy Framework* serves as a key instrument for aligning national, international, and Northern policy priorities (Crown-Indigenous Relations and Northern Affairs Canada 2024). By taking a whole-of-government approach, the framework aims to ensure that Canada's activities and investments in the Arctic and North respect and integrate Indigenous perspectives (Crown-Indigenous Relations and Northern Affairs Canada 2023).

However, workshop participants emphasized that Indigenous peoples must be recognized as *rightsholders*, not merely *stakeholders*. This distinction is critical, as it requires shifting from procedural consultations that can be seen as superficial to decision-making processes that prioritize community-driven outcomes. The need for this transformation is especially pressing given historical and ongoing injustices, including the forced relocation of Indigenous communities in the High Arctic — justified in the name of Canadian sovereignty (Pasternak and Groves 2025) — and the long-standing impacts of military and industrial contamination (Langer et al. 2023).

At the same time, policymakers must recognize the diversity of Indigenous communities. Perspectives on economic development, energy use, and environmental protection vary widely, and policies must be flexible enough to reflect these differences (Huntingdon and Fox 2004). For example, while some communities advocate for stricter environmental protections, others seek opportunities for responsible resource development. One of the most pressing challenges is the heavy reliance of northern communities on fossil fuels, requiring a balanced approach that considers both sustainability and energy security.

Despite growing recognition of the value of traditional Indigenous knowledge, meaningful integration into decision-making remains limited (Fisk et al. 2024). Ensuring that Indigenous leadership is embedded in climate security discussions — rather than treated as an external perspective—will be essential to developing policies that are both effective and just.

Enhance Existing Capacity

Canada's Defence Vision anticipates collaborating with Indigenous partners and northern communities and notes the need to assist with natural disasters and other emergencies (DND 2024a, pp. vi, 3). Likewise, the *Arctic Foreign Policy* aims to assert sovereignty while promoting prosperity for Arctic communities, integrating Indigenous knowledge and perspectives (Stewart and Marijan 2025). To realize this objective, experts stressed expanding on existing capacity.

Specifically, many see value in enhancing and better integrating the capacity and expertise of the Canadian Rangers. As a sub-component of the Canadian Army Reserve, the Rangers play a crucial role in the Canadian North, particularly in the context of climate change, and provide a vital link between the DND and local communities and their knowledge (Kikkert and Lackenbauer 2021). Their functions are broad and include monitoring and surveillance for both national security and environmental purposes, search-and-rescue activities, and serving as first responders in local communities.

The Rangers already collaborate with other components of the CAF. For example, the Canadian Rangers are key participants in Operation NANOOK, an annual operation designed to enhance surveillance, responsiveness, and collaborative capabilities in the region to defend Canada and secure its northern regions (DND 2025). An expanded role for the Rangers could include advising on policy, strengthening ties between Arctic communities and the CAF/DND, and shifting their role beyond first responder to long-term environmental monitoring as well as climate change adaptation strategies. An example from elsewhere would be Australia's Indigenous Rangers Program, where Indigenous communities play an active role in environmental management and disaster response, showcasing successful integration of traditional knowledge with Western scientific approaches (National Indigenous Australians Agency 2025).

A Made-in-Canada Approach to Climate-Security Strategy

As Canada grapples with the security implications of climate change, it can learn from other countries that have already begun integrating climate risks into their national security strategies. From military adaptation and infrastructure resilience to Indigenous-led governance and disaster response coordination, these examples provide valuable insights on how Canada can strengthen its climate-security framework while avoiding costly missteps.

However, while these international approaches offer useful lessons, they must be adapted to the unique context of the Arctic and northern Canada. The complexities of Indigenous rights, regional vulnerabilities, and environmental challenges require a tailored, collaborative response. To effectively address these interconnected issues, Canada needs a *made-in-Canada* approach rooted in systems thinking. Such an approach would recognize the interdependencies of climate change, security, Indigenous governance, and economic development, ensuring that policies are not only responsive to immediate threats but also resilient in the long term. This will require a comprehensive strategy that bridges gaps across government sectors, incorporates Indigenous knowledge, and fosters multilevel cooperation to ensure that Canada's climate-security framework is both effective and just.

Lessons from Other Countries

Australia: Over-Reliance on the Military for Climate Disaster Response

In Australia, the State Emergency Services (SES) is the primary agency responsible for responding to natural disasters. The SES is a civilian-led volunteer organization operating across all states and territories that works with professional agencies and local governments, leveraging community knowledge (Dept. of Home Affairs, Australia 2023). However, the SES relies on support from the Australian military, the Australian Defence Force (ADF), when the scale of the disaster is overwhelming, specialized capabilities are required, or the disaster affects remote or inaccessible areas.

Like the CAF in Canada, the ADF has been subjected to increasing demands for disaster relief, particularly during extreme bushfire and flooding events. The ADF has warned that climate-related deployments are straining its operational readiness and detracting from its core defence missions (Gosling Clarke 2023). The 2023 Defence Strategic Review recommended reducing the use of ADF personnel in climate-disaster response and increasing civilian emergency capacity instead (Australian Government, Defence 2023).

Australia offers a lesson in the need to reduce reliance on CAF for disaster relief, strengthen civilian emergency management agencies, and provide the necessary investment in civilian capacity.

Germany: Civil-Military Coordination

Germany's civilian defence initiatives and emergency response systems align with a whole-of-society approach aimed at enhancing resilience against crises and disasters (Federal Office of Civil Protection and Disaster Assistance [Germany] 2025). This approach situates its military, the Bundeswehr, in a supporting role rather than as the default first responder to climate disasters. Local and regional governments take the lead in disaster response, with the military providing logistical and technical support when civilian capacities are overwhelmed. A national climate risk assessment informs strategic defence planning, ensuring that military operations and infrastructure are prepared for climate-related disruptions.

Germany's approach to emergency preparedness, characterized by well-defined roles, coordinated planning, public drills, and educational programs, offers a practical model for Canada. This highlights the critical need for unified leadership and collaborative efforts in enhancing community resilience.

Greenland: Indigenous-Led Climate Security

Greenland provides an example of Indigenous-led climate governance, with Indigenous leadership not just consulted but holding decision-making power in managing Arctic security and environmental policies (Ministry for Statehood and Foreign Affairs [Greenland] 2024). Indigenous leaders have formal governance roles in Arctic climate adaptation and security decision-making. Greenland's government works closely with Indigenous communities to ensure that security measures align with local environmental knowledge and cultural priorities (Nielsen and Strandsbjerg 2024). Canada can draw inspiration from efforts to incorporate Indigenous communities as rightsholders and to prioritize community interests and local knowledge.

The United States: Military Climate Adaptation and Infrastructure Resilience

The U.S. Department of Defense (DOD) has taken proactive steps to integrate climate risks into defence planning, ensuring that military installations and operational strategies are prepared for climate disruptions.

The DOD Climate Adaptation Plan mandates climate-risk assessments for all military installations, ensuring that bases can withstand extreme weather and rising sea levels (DOD 2024). It also collects intelligence on climate risks to geostrategic stability (DOD 2021).

The U.S. plan is helpful to DND/CAF to ensure climate impact assessment are done and to ensure specific attention is paid to geostrategic impacts.

Norway: Balancing Military Presence with Diplomatic Leadership

Norway balances national security, sustainable development, environmental stewardship, and international cooperation (Government of Norway 2021). Norway tries to balance a strong military presence in the Barents Sea with being a strong diplomatic leader in Arctic governance. Even following the Russian invasion of Ukraine, Norway has sought to maintain some limited points of diplomatic dialogue with Russia (Østhagen 2022).

Norway serves as an example of how to maintain sovereignty and military readiness in the region without provoking military escalation.

Fiji: Managing Climate-Induced Displacement

Fiji has developed a proactive strategy for climate-induced displacement, ensuring that communities forced to relocate due to climate change receive government support and that there is a focus on long-term planning for adaption.

Its Planned Relocation Framework establishes clear protocols for climate-driven migration (Ministry of Economy [Fiji] 2018) ensuring relocations are conducted with community input and long-term support. Fiji's National Adaptation Plan includes building resilience in at-risk communities to reduce the need for forced migration (Government of the Republic of Fiji 2018).

As such, the Canadian government should work closer with indigenous communities to address potential impacts and develop emergency plans.

The Need for a Made-in-Canada Approach

As noted during the workshop discussion, no one country has produced a perfect model for coping with climate-induced security issues that Canada can replicate. Instead, a made-in-Canada approach is needed. However, international examples do demonstrate that effective climate security strategy is possible — but it requires breaking down silos, integrating climate across whole-of-government strategies, prioritizing local and Indigenous leadership, and providing sufficient resources. A successful Canadian strategy will require deep collaboration across all levels of government, Indigenous nations, and local communities to develop tailored solutions that reflect our unique geographic and cultural context.

A Systems Approach to Climate-Security Strategy

A made-in-Canada approach to climate security in the Arctic must begin with systems thinking. Systems thinking focuses on understanding how different components of a system interact and influence one another rather than viewing them in isolation; it is a foundational concept for addressing complex, interconnected or challenges like those at the intersection of climate, peace, and security in the Arctic, which lack clear boundaries, exhibit nonlinear dynamics, and require innovative solutions (Grewatsch, Kennedy, and Bansal 2021). Climate security in the Arctic is not just about defence; it involves Indigenous governance, infrastructure resilience, emergency preparedness, and international cooperation. A systems-thinking approach ensures that policy responses address the root causes of security risks rather than just the symptoms.

This approach allows for a holistic understanding of how competing priorities and values — a challenge emphasized during expert discussion — can shape responses to climate change in the Arctic. (See Figure 3).



Figure 3: "What priorities and values should inform Canada's response to climate change in the Arctic?"

Results from a poll of experts, Ottawa, June 2024

Systems thinking offers a strategy for addressing the root causes of these multifaceted challenges and fostering long-term resilience. By analyzing the relationships between environmental, social, and economic systems, Canadian defence strategies can prioritize crisis prevention and social adaptability. Integrating climate resilience into defence planning

strengthens both military preparedness and community capacity to withstand and recover from crises. This approach demands cross-sector collaboration, with, inter alia, civil society, environmental organizations, and Indigenous communities, ensuring proactive defence policies that address future complexities.

Breaking Down Silos: Whole-of-Government and Indigenous Governance Integration

Climate adaptation, defence strategy, and Indigenous governance are often treated separately, leading to gaps in strategy, leadership, and resources. Overcoming these challenges requires breaking down silos and fostering interdepartmental communication. Greater collaboration between key departments, such as the DND/CAF, ECCC, and GAC, is crucial. While initiatives like the NATO Climate Change and Security Centre of Excellence have improved communication across departments, they do not address the lack of a clear leadership body for climate change and security efforts (Doyle 2024). This absence of coordinated leadership results in fragmented policies and overlapping responsibilities. The separation of resources and responsibilities among humanitarian, security, and climate-focused sectors leads to gaps in response efforts, leaving vulnerable populations at risk (Barron, Hugh, and Portillo-Taylor 2023).

Without a systems-thinking approach, climate security policies will be fragmented, reactive, and ineffective. Canada must break down policy silos, align defence and civilian planning, and integrate Indigenous leadership into Arctic governance.

From Reaction to Long-Term Planning

To effectively address climate-induced security challenges, Canada must transition from reactive responses to proactive, long-term planning. Systems thinking provides a crucial framework for this shift. As a holistic approach, it considers the interconnectedness of factors within complex systems, moving beyond the treatment of climate change as a separate issue. Specifically, it acknowledges that environmental shifts drive geopolitical instability and resource competition; humanitarian crises like displacement and food insecurity can escalate into security threats; and military infrastructure and operations must adapt to climate risks.

By adopting systems thinking, Canada can develop a security strategy that anticipates longterm risks and builds resilience. The European Climate Law exemplifies this approach. As part of the European Green Deal, it integrates sectors like energy, transport, and agriculture to achieve climate neutrality by 2050, thereby enhancing resilience against climate-related security threats. This unified strategy, through renewable energy, infrastructure strengthening, and adaptation research, reduces regional vulnerabilities tied to energy dependence and resource competition (European Commission 2021).

To effectively respond to climate change, the Department of National Defence and the Canadian Armed Forces should prioritize proactivity through inclusive scenario planning and simulations.

To enhance effectiveness, the CAF's approach to climate-crisis response should shift from reactive to proactive. This entails increased investment in long-term planning, scenario simulations, and contingencies tied to dedicated climate-response funding. By integrating

climate-crisis preparedness into their strategic priorities, national defence institutions can develop a structured approach that ensures rapid, coordinated, and community-sensitive responses to the growing impacts of climate change.

Policy Recommendations: A Climate-Responsive Security Strategy for Canada

These policy recommendations outline a comprehensive and proactive approach to integrating climate change into Canada's national security strategy. By prioritizing climate-responsive security measures, we can strengthen our resilience to environmental and security risks, particularly in the Arctic and remote communities. The proposed actions focus on enhancing coordination across federal, provincial, and Indigenous governance bodies, investing in climate-resilient infrastructure, expanding Indigenous-led security initiatives, and positioning Canada as a global leader in climate-security diplomacy. Implementing these recommendations will not only bolster Canada's climate resilience but ensure that national security remains aligned with the realities of a changing climate.

Establish a National Climate-Security Task Force

What's needed?

- Create a centralized body to coordinate climate-security efforts across DND, Public Safety Canada, ECCC, Indigenous governance bodies, and local governments.
- Develop CAF engagement protocols for climate response, ensuring military intervention is a supporting rather than a default role.

Strengthen Civilian-Led Emergency Response and Disaster Preparedness

What's needed?

- Shift climate disaster response leadership to civilian agencies (e.g., Public Safety Canada, emergency management offices, local authorities).
- Expand provincial and municipal disaster-response funding to reduce dependence on CAF deployments.

Invest in Climate-Resilient Infrastructure for Arctic and Remote Communities

What's needed?

- Increase investment in climate-resilient housing, transportation, and energy infrastructure for Arctic communities.
- Prioritize clean energy solutions (e.g., microgrids, solar, wind) over fossil fuel-dependent systems in remote regions.
- Fund community-led permafrost adaptation projects to prevent infrastructure failures in Arctic towns.

Expand Indigenous-Led Security and Emergency Response Initiatives

What's needed?

- Increase funding for Canadian Rangers and Indigenous-led Arctic security programs.
- Establish Indigenous-led search-and-rescue teams and expand their role in Arctic governance.
- Recognize Indigenous governance as a formal security pillar in Arctic policy frameworks.

Position Canada as a Global Leader in Climate Security Diplomacy

What's needed?

- Establish Canada as a diplomatic leader in climate security discussions, particularly in Arctic governance forums.
- Strengthen Canada's role in international climate-security frameworks, ensuring Arctic peace and environmental protection remain priorities.
- Develop climate-focused security partnerships with Arctic and non-Arctic nations to promote shared resilience, conflict prevention, and sustainable resource management.

While the case for a systems-based, climate-responsive security strategy is clear, putting it into practice will not be straightforward. Challenges include institutional inertia, siloed decision-making within federal agencies, limited coordination between military and civilian bodies, and capacity constraints in some northern communities. Moving beyond short-term crisis response will require not only political will and consistent funding, but also sustained leadership, cross-sector collaboration, and long-term policy alignment.

Conclusion: The Cost of Inaction

Canada's security strategy must evolve to meet the realities of climate change. Failing to act will leave the country ill-prepared for increasingly frequent climate disasters, with weakened Arctic leadership, and a tendency to rely too heavily on a military-first response.

Climate security is not a future issue. It is already reshaping Canada's defence landscape. Despite its logistical capacities and mandate to assist with domestic emergencies, CAF cannot remain the first responder to every climate crisis. Instead, civilian and Indigenous capacities must be strengthened.

Arctic security is about more than military presence; it requires leadership in governance, infrastructure resilience, Indigenous rights, and investment in diplomacy. Adapting national security to the current climate crisis requires integrating climate considerations into all levels of policymaking and breaking down institutional silos that impede coordination and long-term planning.

Canada has a rare opportunity to lead—not only in responding to climate-related security risks, but in defining what responsible and inclusive Arctic security should look like in the 21st century. By acting decisively, Canada can set a global example in balancing sovereignty, diplomacy, and environmental stewardship in a rapidly changing region.

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